

Petition No. 1137
Amendment #2
July 12, 2018

Ecos Energy LLC is submitting on behalf of Windham Solar LLC (“Windham Solar”) an amendment to an approved petition for declaratory ruling (“Petition”) by the Connecticut Siting Council (“Council”). On August 31st, 2017, the Council approved the request to amend the facility per the July 6th 2017 amendment application for the final design, construction, operation and maintenance of the initial five (5) 1.0 megawatt facilities. Since Council approval, Windham Solar LLC has completed electrical construction of the five (5) 1.0 megawatt facilities. The conditions outlined in the September 5th, 2017 approval letter from the Council were also implemented during the construction of the project; Wood turtle protection was implemented during construction, the abandoned UST tank in the farmstead area was removed and registered with DEEP and communications have been ongoing to with local municipalities. The five facilities are currently operating and Windham Solar will be implementing the long term stormwater measurement plan after final approval from DEEP starting in July of 2018.

Windham Solar LLC is requesting to amend the facility footprint for the construction of the projects last 1.1 megawatt solar photovoltaic renewable energy generating facility on the site per the following attachments. The final design will incorporate 3000 modules and will be a 1.0MW AC project. The project will be split into a 2-part footprint, the westerly footprint utilizes the remaining upland area at the south end of the approved footprint expanding slightly to incorporate an efficient electrical string design, 2100 modules will be installed in the area. The easterly footprint of the project includes 900 modules and utilizes the majority of the remaining upland in the southeast corner of the site in the town of Franklin. This footprint expansion was required to keep the permitted project size, and address all the final design elements of the project. The following exhibits outline the steps taken to prepare a final site design for the project.

Project Civil Construction Documents & SWPCP:

This amendment implements the latest stormwater design requirements recommended by DEEP and adheres to the design requirements outlined in the 2002 CT guidelines for Erosion and Sediment control and the 2004 Connecticut Stormwater Quality manual. Updated civil construction documents, hydraulic calculations and a complete Stormwater Pollution Control Plan has been prepared for the revised project footprint. The SWPCP was submitted to DEEP for approval on July 3rd, 2018. 3 copies of the 196-page SWPCP have been submitted with this amendment request, and the full SWPCP can be downloaded in the following link: <https://ecosenergy.box.com/s/fdmb32xa4pcdy7zzy149xrn2pj86apn4>

The revised Civil Construction Documents, the major design element of the SWPCP can be found attached as Exhibit A.

Wetland Report Update:

The amendment request includes activity within 100 feet of an isolated hill seep wetland. Highland Soils, LLC has reviewed the isolated wetland and provides specific comments for the activities associated with regulated wetland. The updated wetland report is attached as Exhibit B.

System Racking:

The solar racking currently constructed for the five (5) 1.0 megawatt facilities incorporated a design with 4 modules in landscape with a two-post helical ground screw for racking. This amendment requests a design change for 2 modules in portrait, and a ballasted footing design. These footings are either poured on or off site, and placed in the field. The ballast design will minimize earth disturbances by placing at grade footings underneath the racking. This method of construction will speed up racking installation,

remove the risks of subgrade rock encounters which occurred on the construction of the initial (5) 1.0 megawatt facilities as well as be more adept to construction issues that could be encountered during winter condition construction. Additional information for the ballast racking can be found attached as Exhibit C.

Updated Public Notices:

A revised public notice of the project was made to the abutters and government officials via certified mail distributed on July 11th, 2018. On July 14th, 2017, a public notice will also be printed in the Chronicle. Supporting document on the public notices is attached as Exhibit D.

NDDB Update:

On June 29, 2017 Windham Solar received revised correspondence from Connecticut Department of Energy and Environmental protection relating to the environmental review of the project. The recommended protection strategies, have also been incorporated into the projects SWPCP, and will be implemented during the construction of the Facilities, the NDDB update expires on June 29, 2019. The document has been attached as Exhibit E.

Exhibit A

Civil Construction Documents

WINDHAM SOLAR - PHASE II CONSTRUCTION DOCUMENTS

FOR
Site Layout, Grading/Drainage/Erosion Control/Landscaping
IN
LEBANON, CONNECTICUT

LOCATION MAP



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●	6/22/2018	3	AS BUILT SURVEY NORTH & SOUTH (BY HELLSTROM LS, LLC)
●	6/22/2018	4	OVERALL SITE PLAN
●	6/22/2018	5	PHASE II EROSION CONTROL PLAN - 1"=40'
●	6/22/2018	6	PHASE II LANDSCAPE PLAN
●	6/22/2018	7	AREA A & B STORM WATER BASINS
●	6/22/2018	8	AREA C STORM WATER BASIN
●	6/22/2018	9	CIVIL NOTES
●	6/22/2018	10	CIVIL DETAILS

DRAWING INDEX LEGEND

○	-	X/XX/201X	X	SHEET TITLE
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FILLED CIRCLE INDICATES DRAWING INCLUDED WITHIN THIS ISSUE
MOST RECENT REVISION NUMBER
MOST RECENT ISSUE OR REVISION DATE

CONTACT INFO:

RECORD LANDOWNER:
PLH, LLC
77 WATER STREET
8TH FLOOR
NEW YORK, NY 10005

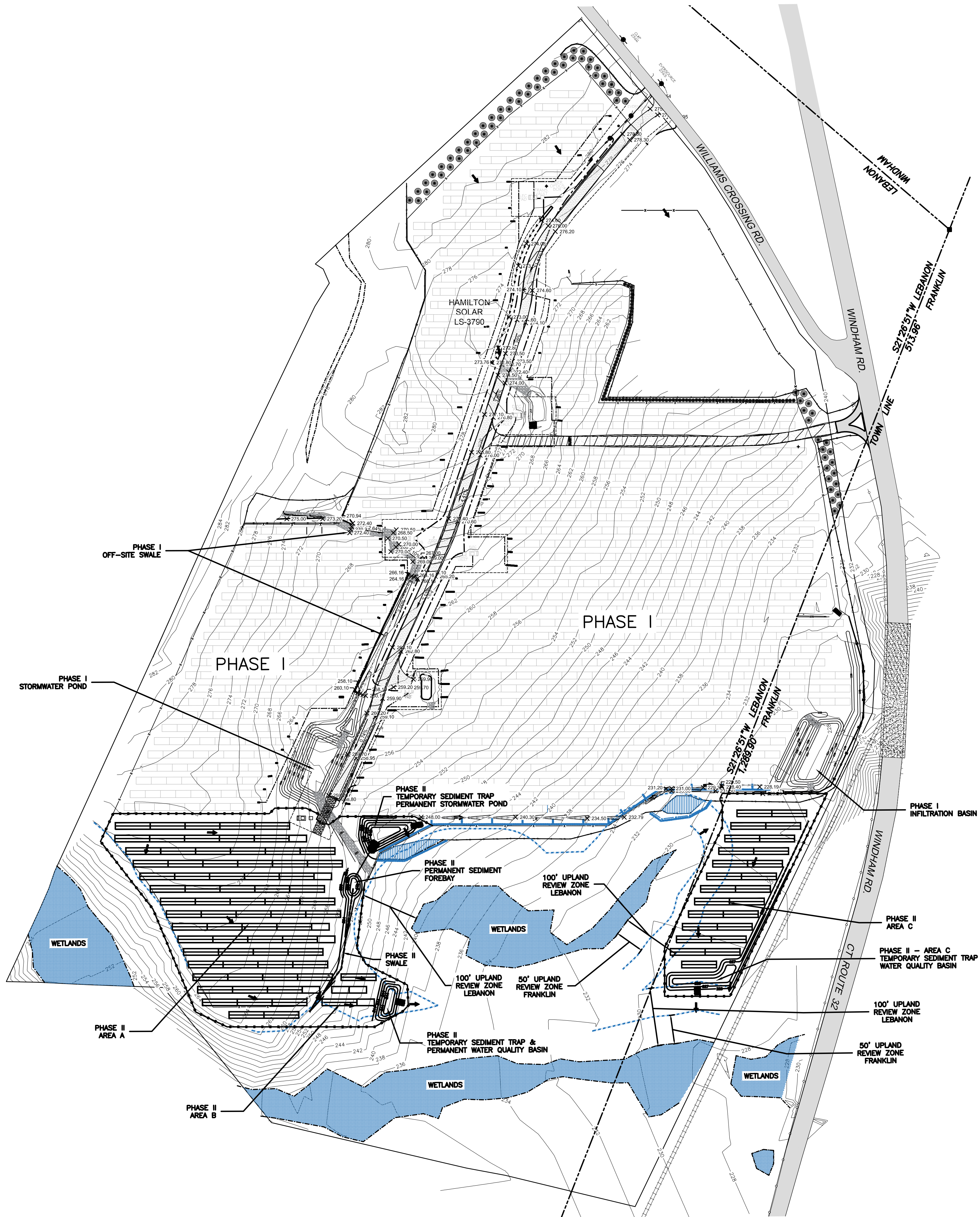
OWNER/DEVELOPER:
WINDHAM SOLAR, LLC
222 SOUTH 9TH STREET
SUITE 1600
MINNEAPOLIS, MN 55402

SURVEYOR:
ROB HELLSTROM LAND
SURVEYING, LLC
P.O. BOX 497
HEBRON, CT 06248

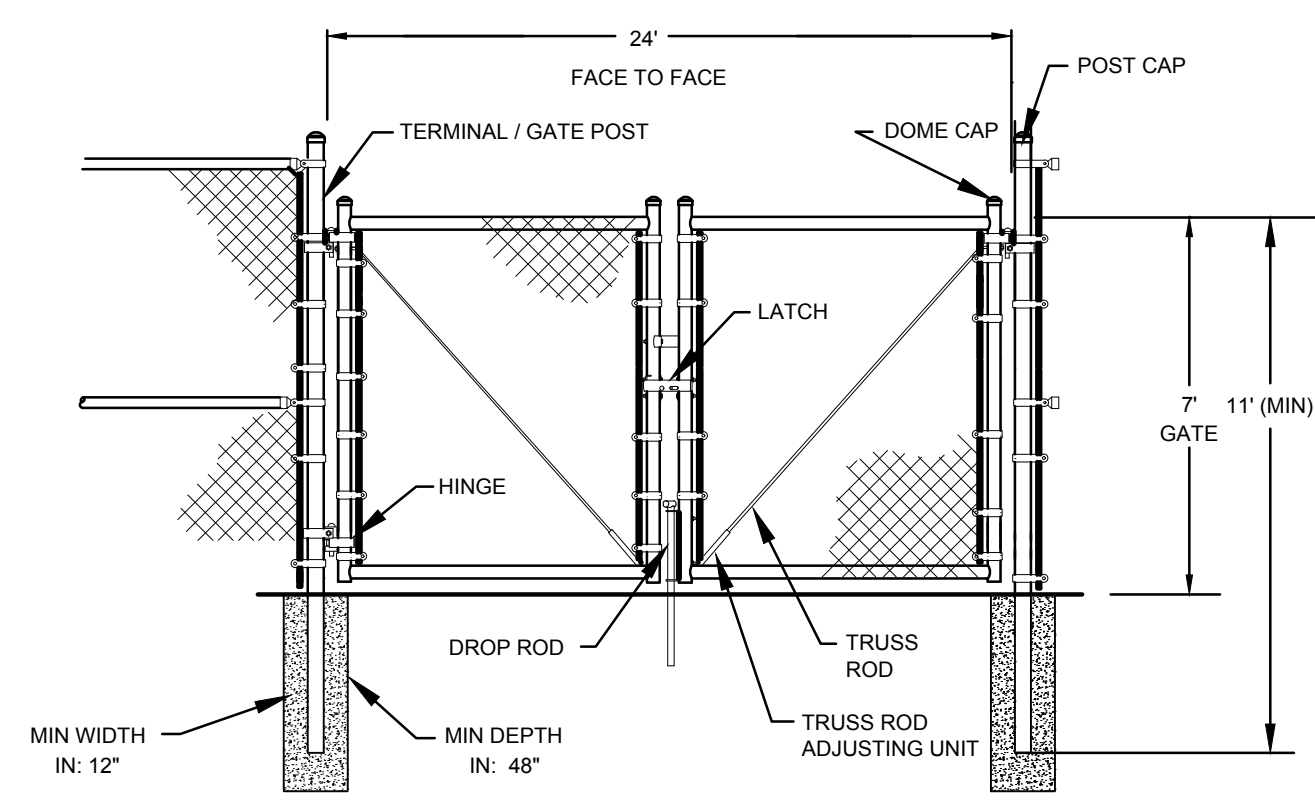
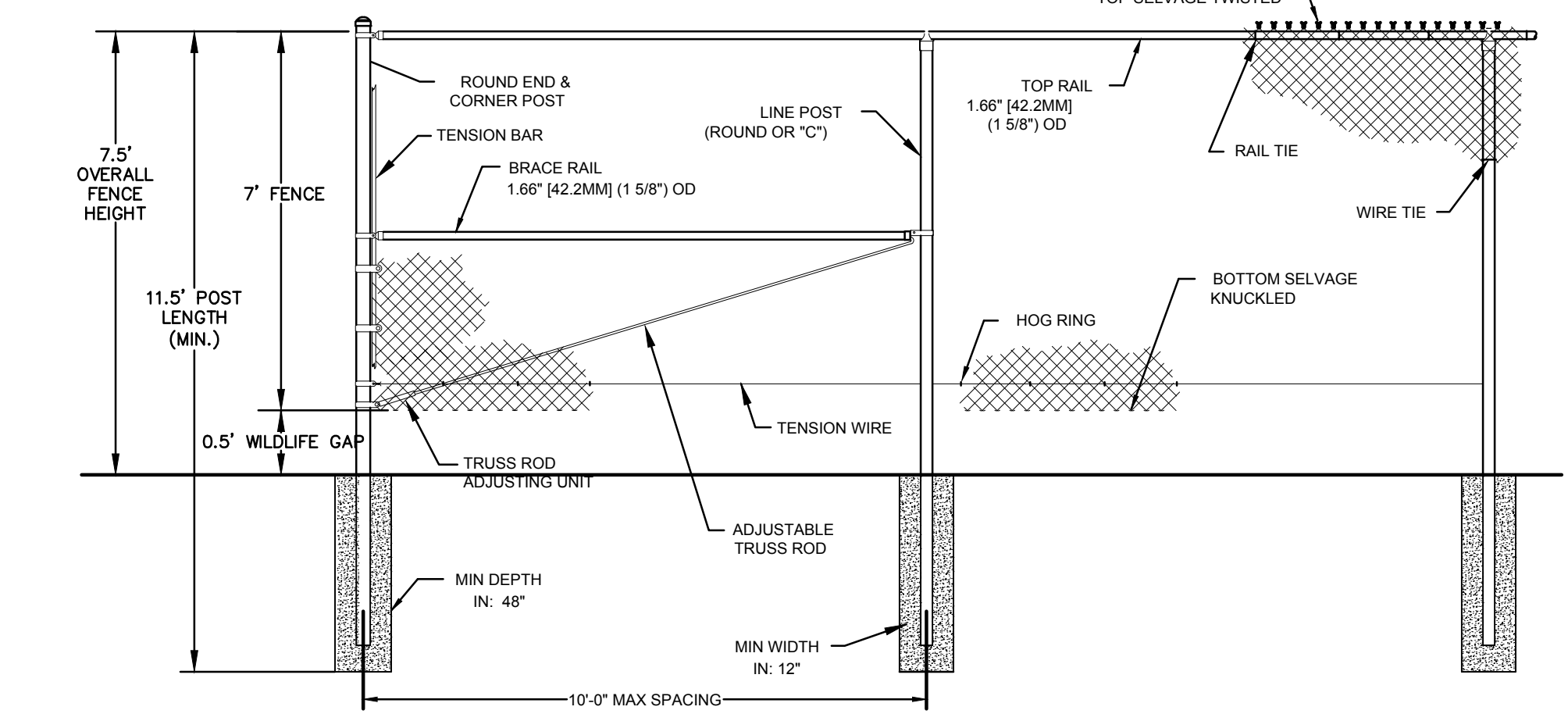
WETLAND DELINEATION:
HIGHLAND SOILS
P.O. BOX 337
STORRS, CT 06268

GEOTECHNICAL ENGINEER:
TERRACON
201 HAMMER MILL ROAD
ROCKY HILL, CT 06067

			CLA Engineers, Inc. Civil • Structural • Surveying	
			317 Main Street Norwich, Connecticut (860) 886-1966 Fax (860) 886-9165	
No.	Date	Revision	1 WILLIAMS CROSSING ROAD LEBANON, CT 06249	
			Project No. CLA-6126	
			Proj. Engineer E.M.B.	
			Date: 6/22/18	
			Sheet No. 1	
			WINDHAM SOLAR PHASE II	
			COVER SHEET	

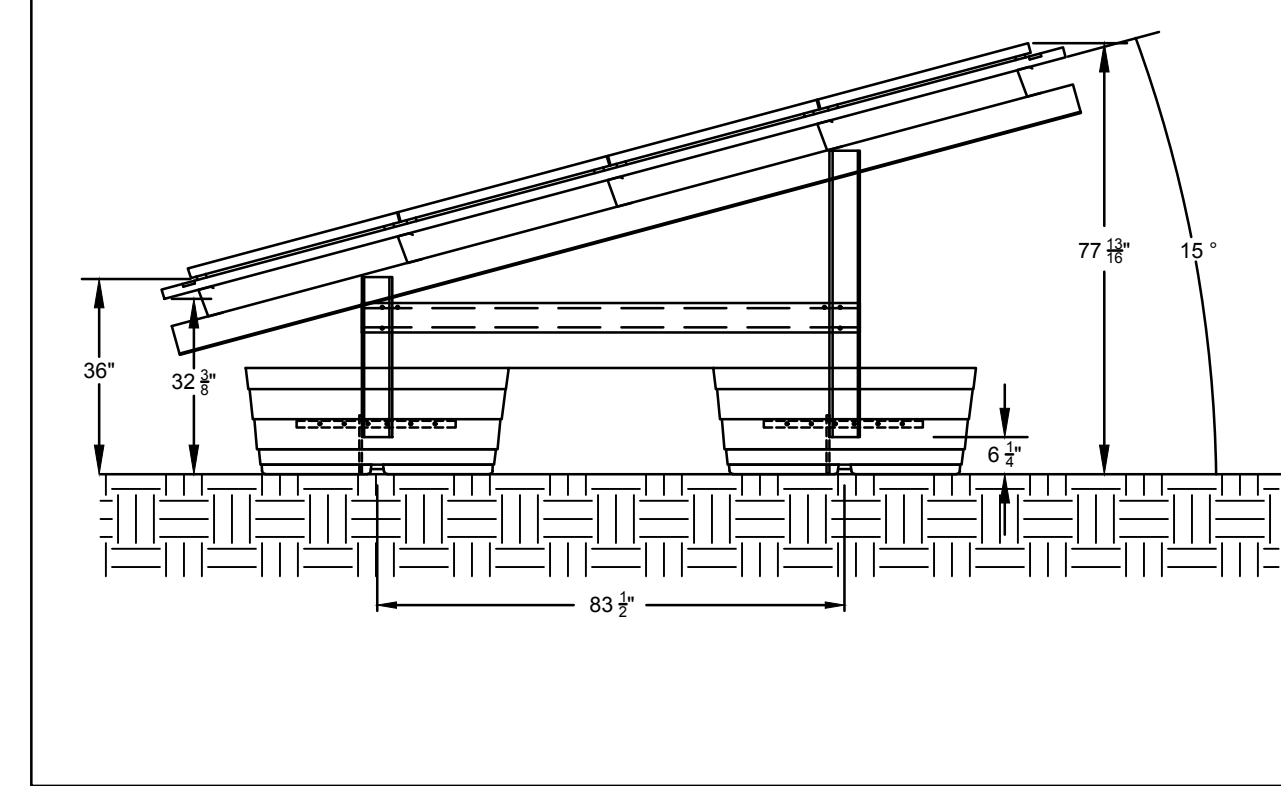


PERIMETER FENCE & GATE DETAIL:



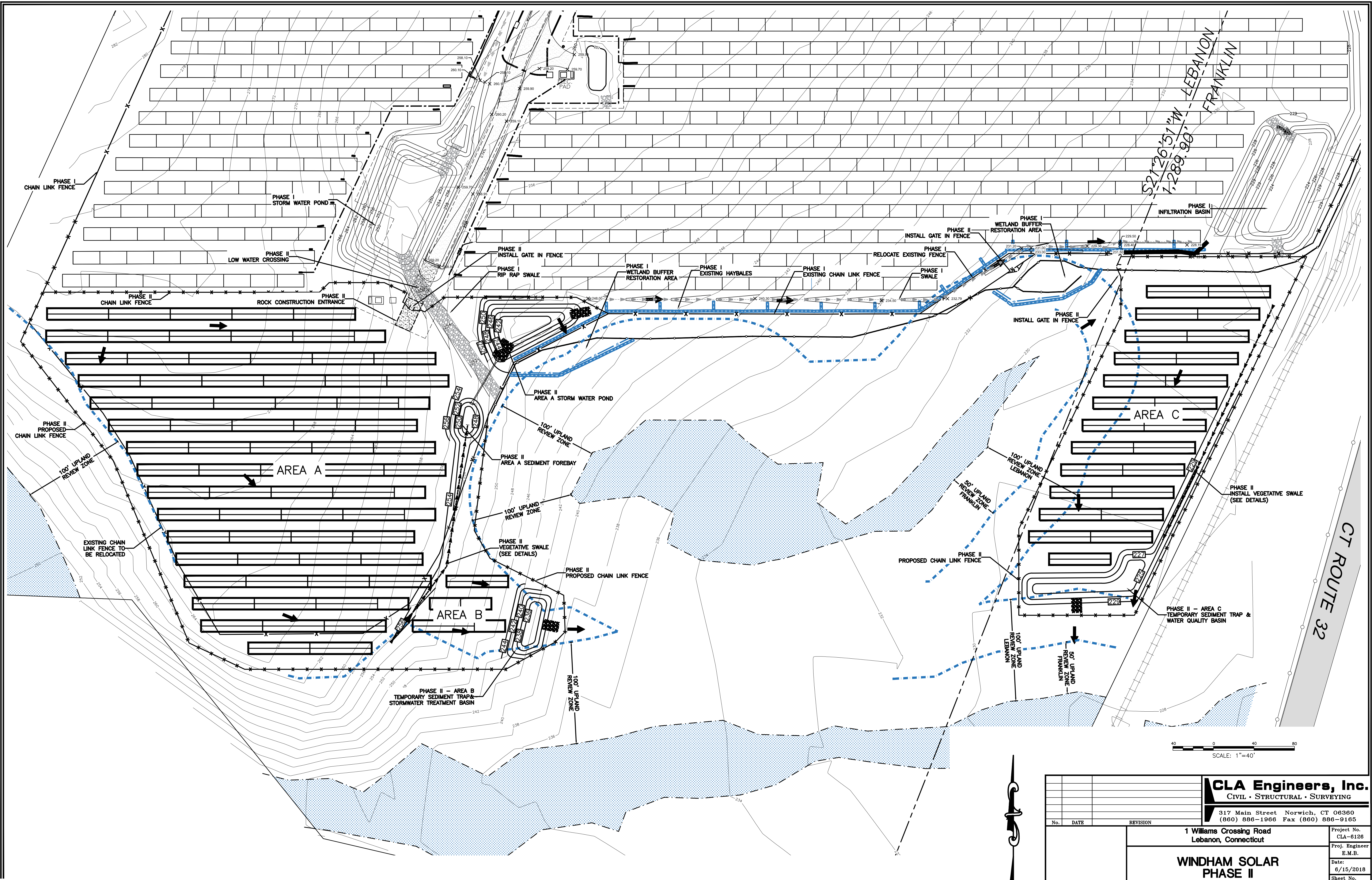
- FENCING NOTES:**
1. FENCING PARALLEL WITH WILLIAMS CROSSING ROAD AND ROUTE 32 SHALL BE BLACK VINYL COATED.
 2. ALL 3 FENCE GATES SHALL BE BLACK VINYL COATED.
 3. FENCE DETAILS REPRESENTED ARE CONCEPTUAL, FENCE CONTRACTOR TO SUBMIT ACTUAL SHOP DRAWINGS PRIOR TO CONSTRUCTION

RACKING PROFILE DETAIL:



<p>CLA Engineers, Inc. CIVIL • STRUCTURAL • SURVEYING</p> <p>317 Main Street Norwich, CT 06360 (860) 886-1986 Fax (860) 886-9165</p>			Project No. CLA-6126
			Proj. Engineer E.M.B.
<p>1 Williams Crossing Road Lebanon, Connecticut</p>			Date: 6/15/2018
<p>WINDHAM SOLAR PHASE II</p>			Sheet No. 4
<p>PHASE II OVERALL SITE PLAN</p>			

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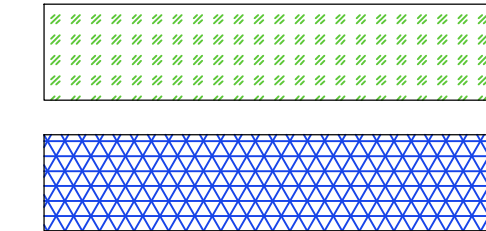
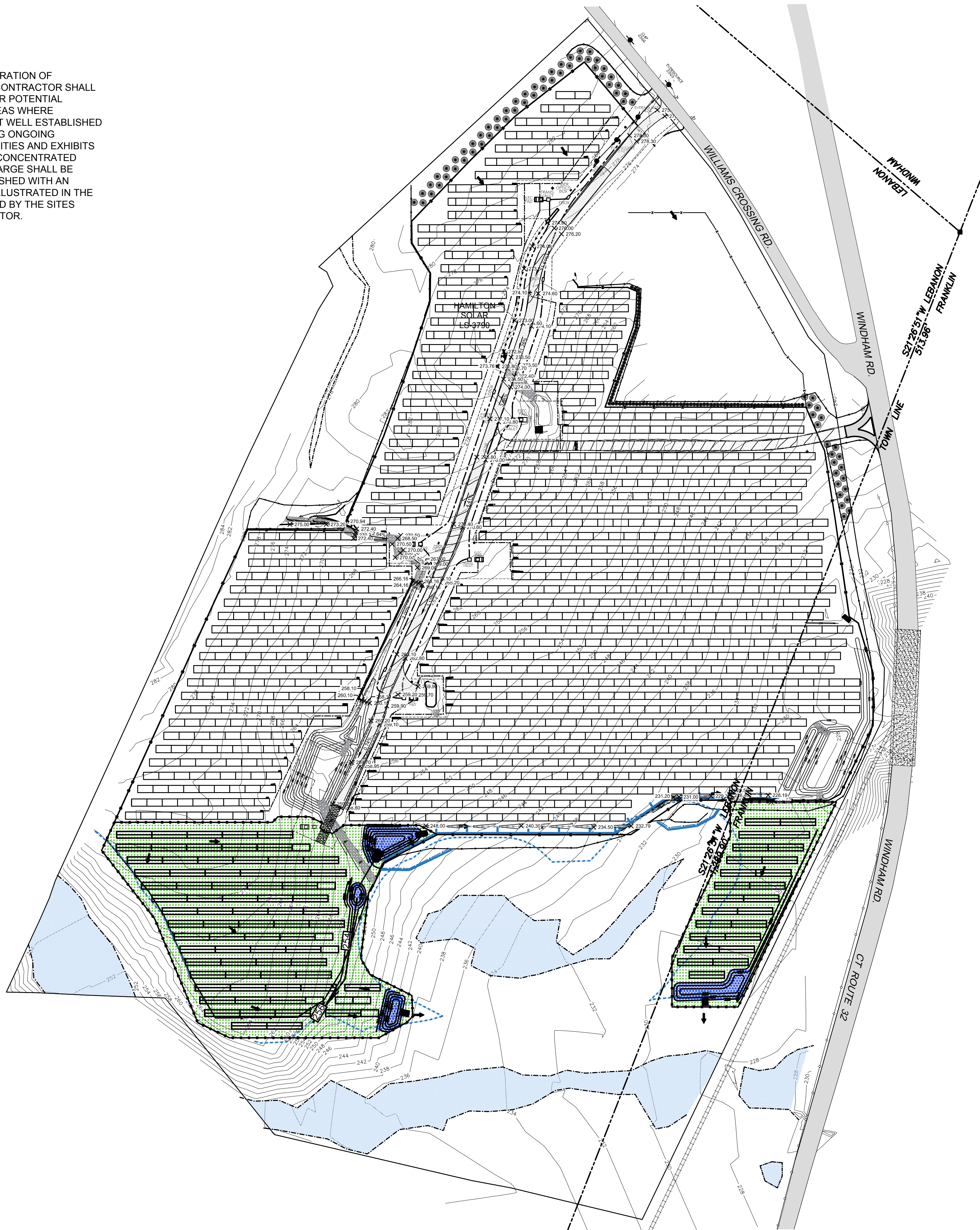
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No.	DATE	REVISION
Project No. CLA-6126 Proj. Engineer E.M.B. Date: 6/15/2018 Sheet No. 5		
1 Williams Crossing Road Lebanon, Connecticut WINDHAM SOLAR PHASE II PHASE II LAYOUT PLAN		

CLA

THROUGHOUT THE DURATION OF CONSTRUCTION THE CONTRACTOR SHALL MONITOR THE SITE FOR POTENTIAL EROSION ISSUES. AREAS WHERE GROUND COVER IS NOT WELL ESTABLISHED OR DISTURBED DURING ONGOING CONSTRUCTION ACTIVITIES AND EXHIBITS THE POTENTIAL FOR CONCENTRATED STORM WATER DISCHARGE SHALL BE MULCHED OR ESTABLISHED WITH AN APPROVED METHOD ILLUSTRATED IN THE SWPCP AND APPROVED BY THE SITES STORMWATER INSPECTOR.



SITE GRADING SEEDING - 3.64 ACRES
RESTORATION MIX SEEDING 0.32 ACRES

SEEDING:

1. COMPOSITION OF SEED MIX CHANGES YEARLY. SEED SPECIFICATIONS MUST BE SUBMITTED TO ENGINEER 2 WEEKS PRIOR TO INSTALLATION. ALL SPECIES MUST BE NATIVE TO NEW LONDON COUNTY.
2. RESTORED AREAS TO BE SEEDED WITH ABOVE MIX OR EQUAL (SUBJECT TO ENGINEERS APPROVAL). SEED TO BE LIGHTLY RAKED TO ALLOW FOR PROPER SEED/SOIL CONTACT.
3. CONTRACTOR SHALL OVERSEED AND/OR RE-MULCH AS NECESSARY TO ESTABLISH A GOOD COVER OF VEGETATION, WHETHER DUE TO POOR INITIAL COVER, INCLEMENT WEATHER BEFORE/DURING/AFTER SEEDING, OR THE ONSET OF WINTER.
4. RILLING, GULLIES, OR OTHER EROSION DUE TO POOR COVER SHALL BE RAKED AND/OR REFILLED AND REMULCH/RESEEDED.
5. CONTRACTOR SHALL WARRANTEE SEEDING, MULCHING AND EROSION CONTROL FABRIC FOR ONE YEAR FROM THE SUBSTANTIAL COMPLETION OF THE RELEVANT AREA OF WORK.
6. CONTRACTOR SHALL SEED BASINS WITH THE NEW ENGLAND EROSION CONTROL/RESTORATION MIX. CONTAINS A SELECTION OF NATIVE GRASSES AND WILDFLOWERS DESIGNED TO COLONIZE RECENTLY DISTURBED SITES WHERE QUICK GROWTH OF VEGETATION IS DESIRED TO STABILIZE THE SOIL SURFACE. IT IS AN EXCELLENT SEED MIX FOR ECOLOGICALLY APPROPRIATE RESTORATIONS ON MOIST SITES THAT REQUIRE QUICK STABILIZATION AS WELL AS LONG-TERM ESTABLISHMENT OF NATIVE VEGETATION. THIS MIX IS PARTICULARLY APPROPRIATE FOR DETENTION BASINS THAT DO NOT NORMALLY HOLD STANDING WATER. SOME PLANTS IN THIS MIX CAN TOLERATE INFREQUENT INUNDATION, BUT NOT CONSTANT FLOODING.

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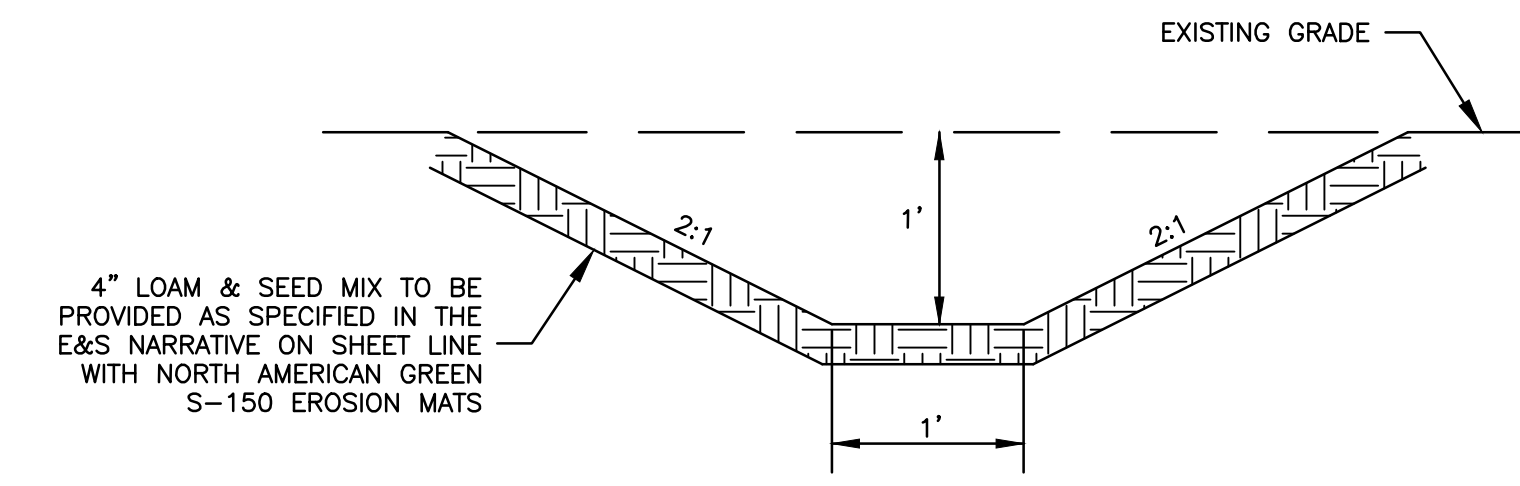
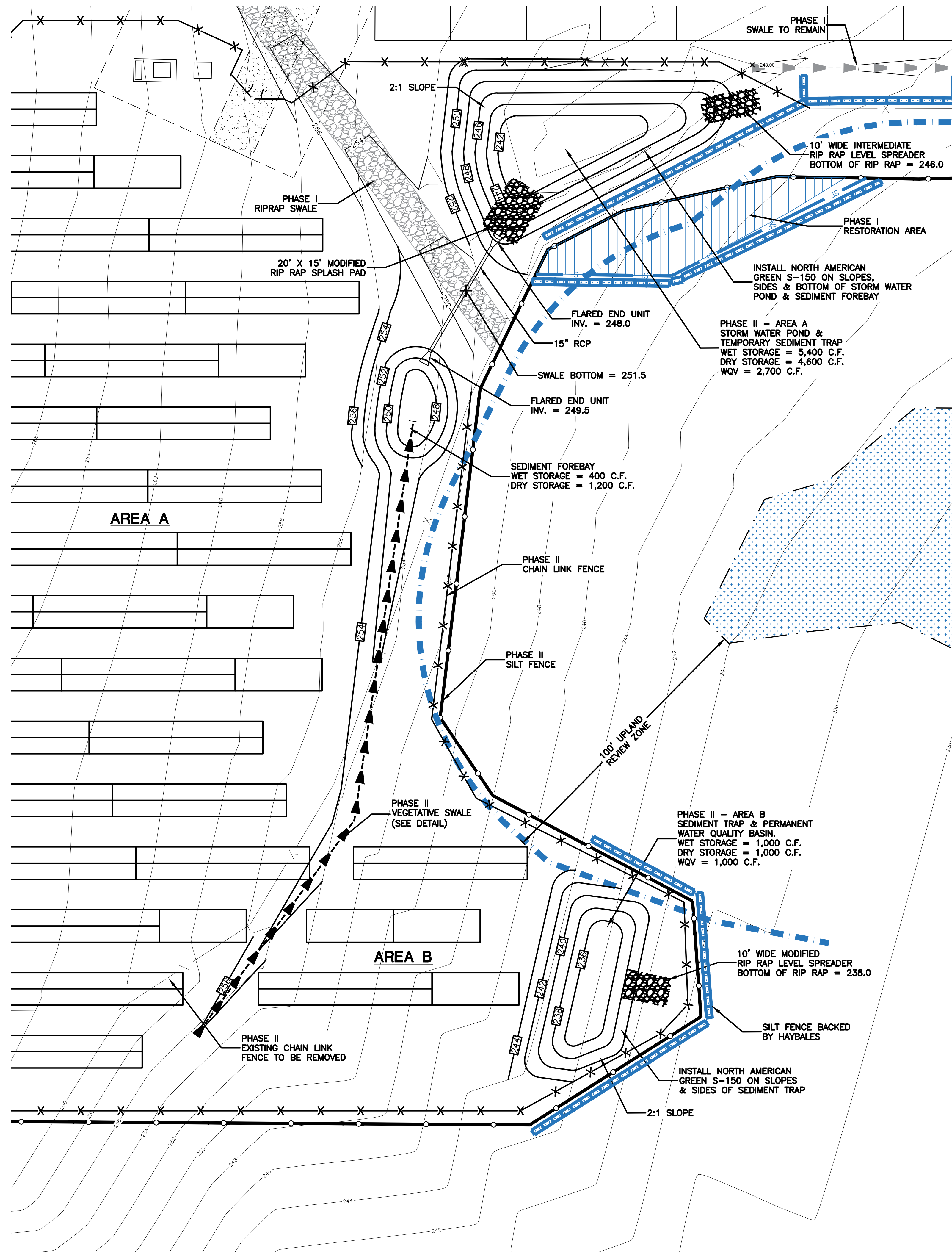
APPLICATION RATE: 35 LBS/ACRE (1250 SQ. FT./LB.)

SPECIES *: SWITCHGRASS (PANICUM VIRGATUM), VIRGINIA WILD RYE (ELYMUS VIRGINICUS), CREEPING RED FESCUE (FESTUCA RUBRA), FOX SEDGE (CAREX VULPINOIDEA), CREEPING BENTGRASS (AGROSTIS STOLONIFERA), SOFT RUSH (JUNCUS EFFUSUS), NEW ENGLAND ASTER (ASTER NOVAE-ANGLIAE), GRASS-LEAVED GOLDENROD (EUTHAMIA GRAMINIFOLIA), GREEN BULRUSH (SCIRPUS ATROVIRENS), BONESET (EUPATORIUM PERFOLIATUM), BLUE VERVAIN (VERBENA HASTATA) UPLAND BENTGRASS (AGROSTIS PERENNANS), BIG BLUESTEM, NIAGRA (ANDROPOGON GERARDII), SENSITIVE FERN (ONOCLEA SENSIBILIS), LITTLE BLUESTEM (SCHIZACHYRIUM SCOPARIUM), WOOLGRASS (SCIRPUS CYPERINUS).

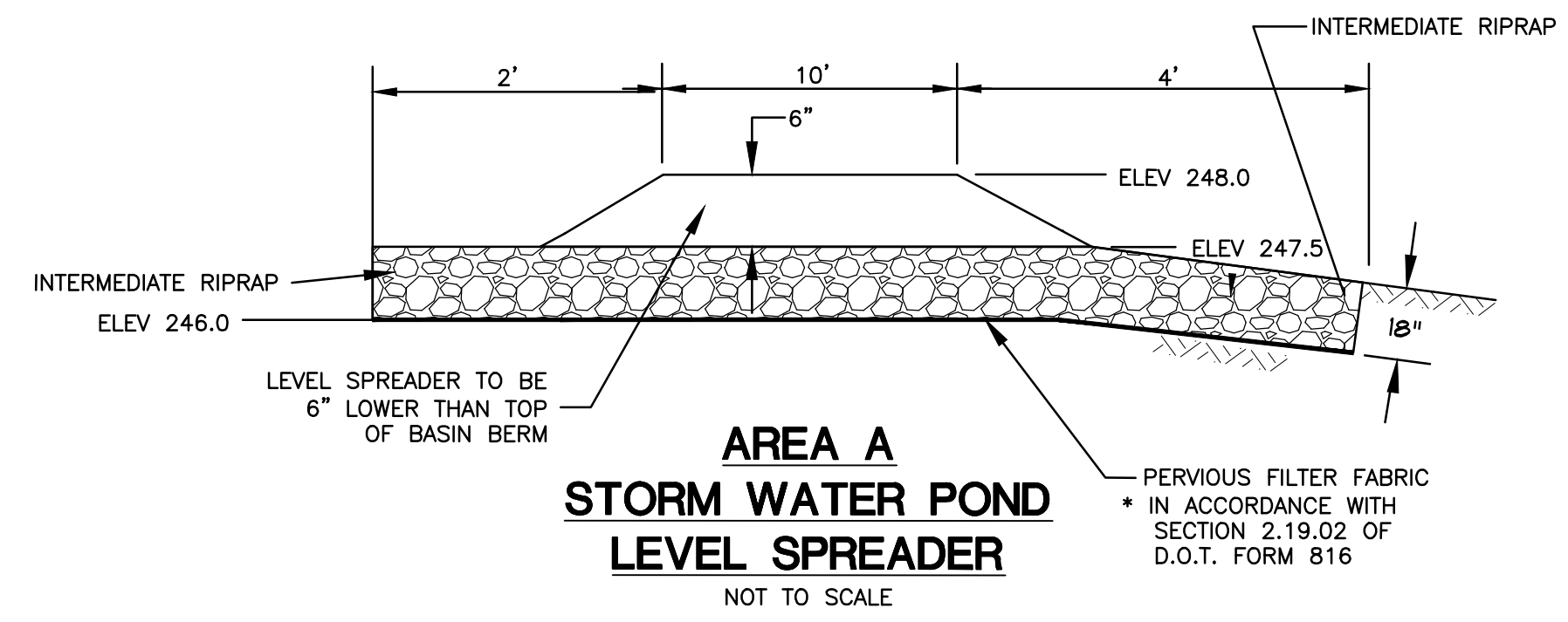


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No.	DATE	REVISION	
1 Williams Crossing Road Lebanon, Connecticut		Project No. CLA-6126	Proj. Engineer E.M.B.
WINDHAM SOLAR PHASE II		Date: 6/15/2018	Sheet No. 6
PHASE II LANDSCAPE PLAN			

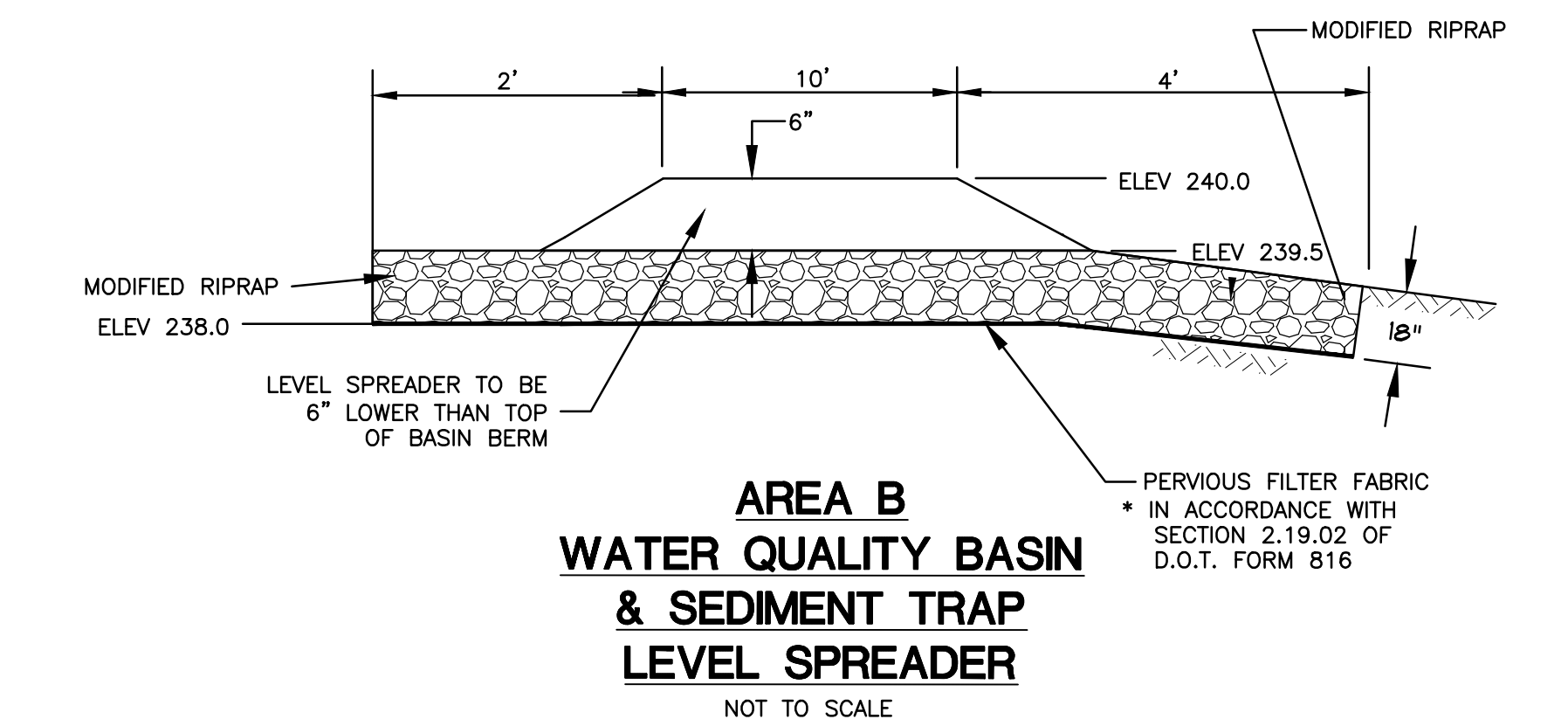
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TEMPORARY VEGETATED SWALE
NOT TO SCALE



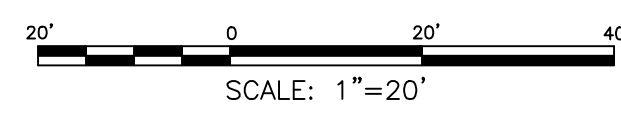
AREA A STORM WATER POND LEVEL SPREADER
NOT TO SCALE



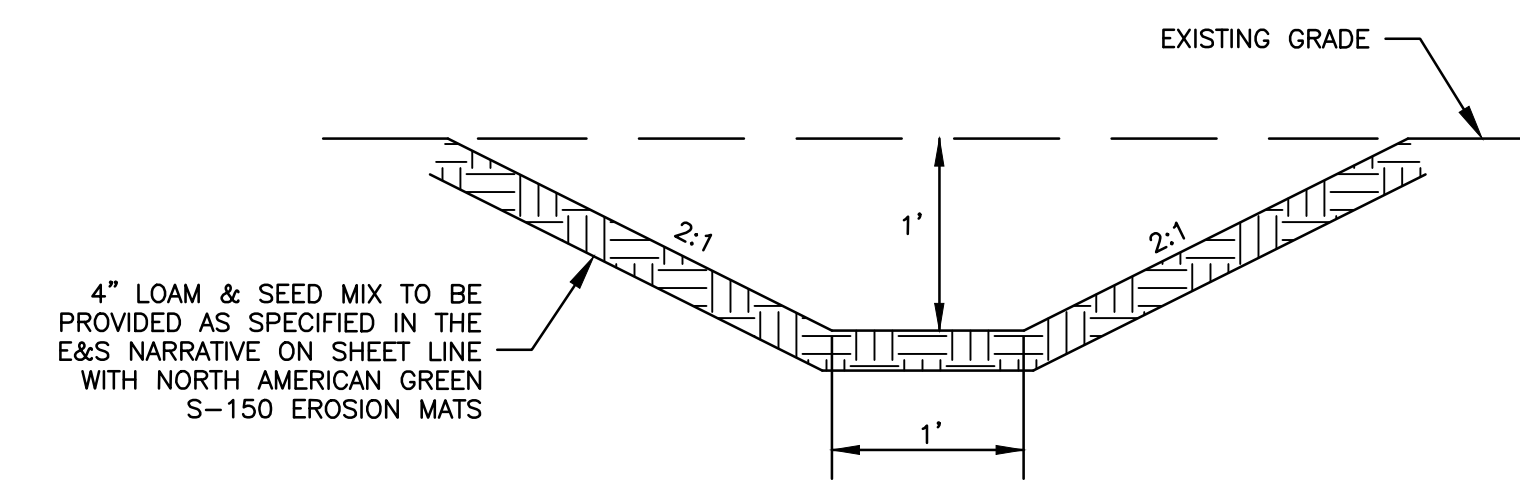
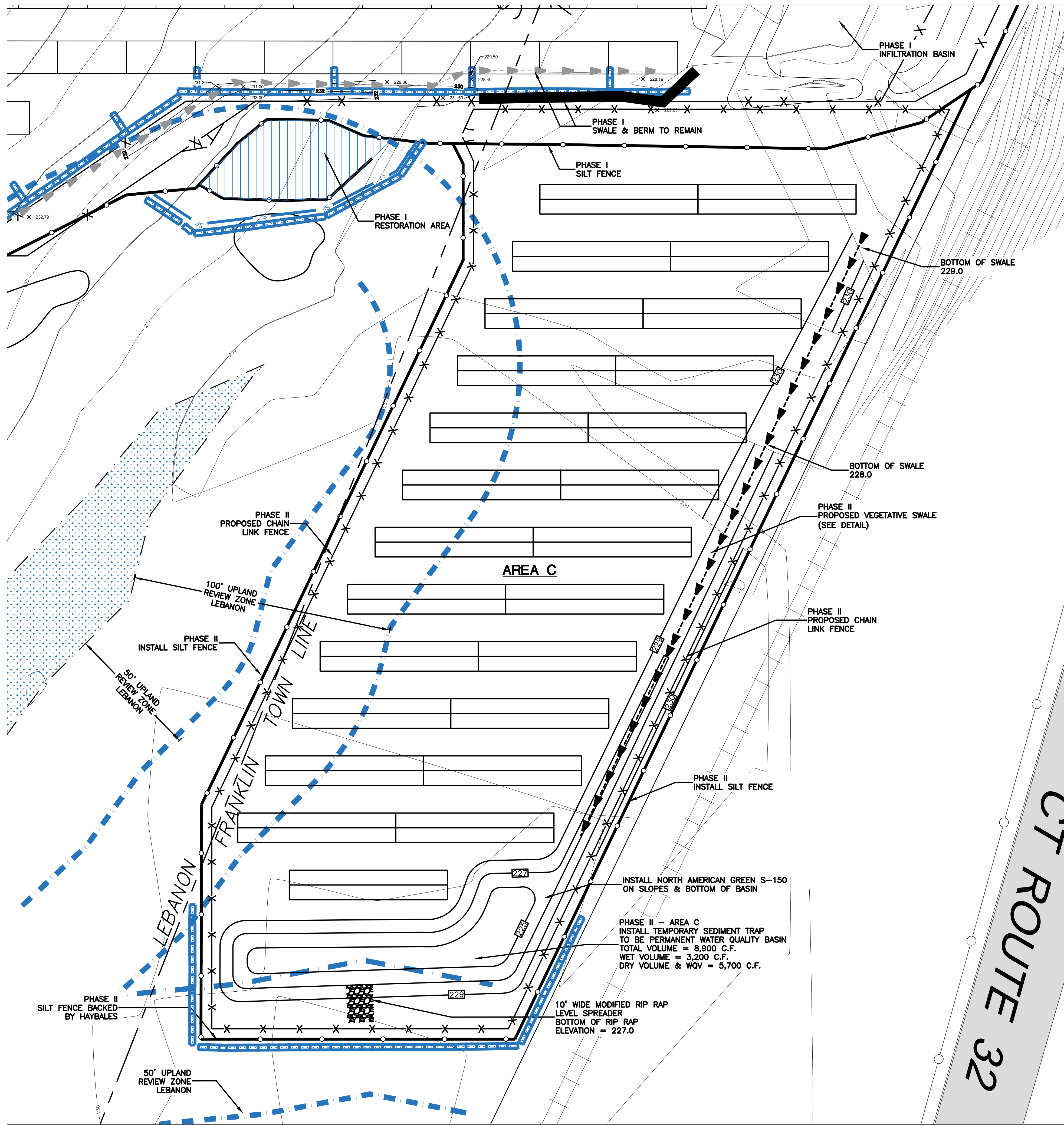
AREA B WATER QUALITY BASIN & SEDIMENT TRAP LEVEL SPREADER
NOT TO SCALE

SEED MIX FOR STORMWATER TREATMENT BASIN
THE NEW ENGLAND EROSION CONTROL/RESTORATION MIX FOR DETENTION BASINS AND MOIST SITES
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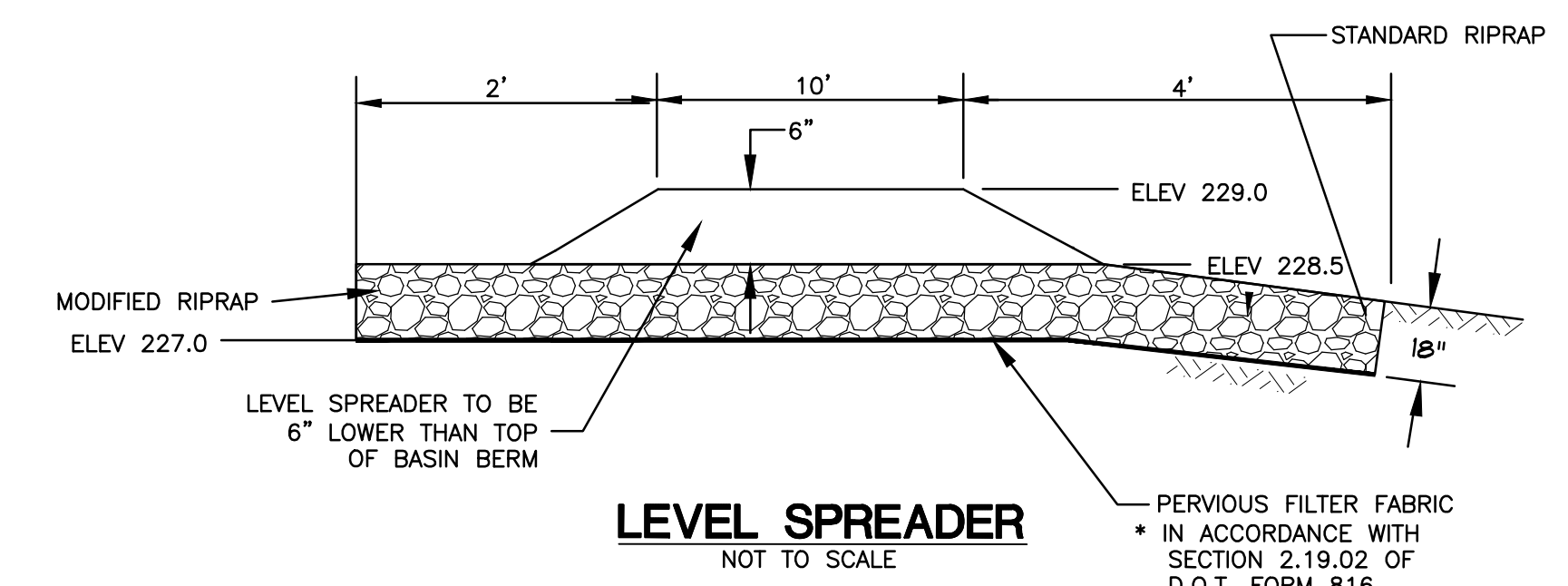
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<p>1 Williams Crossing Road Lebanon, Connecticut</p>		<p>Project No. CLA-6126</p> <p>Proj. Engineer E.M.B.</p> <p>Date: 6/15/2018</p> <p>Sheet No. 7</p>	
<p>WINDHAM SOLAR PHASE II</p> <p>AREA A & B STORMWATER BASINS</p>			



TEMPORARY VEGETATED SWALE
NOT TO SCALE



LEVEL SPREADER
NOT TO SCALE

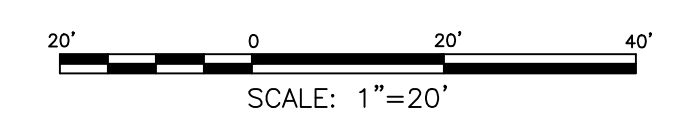
SEED MIX FOR STORMWATER TREATMENT BASIN

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<p>Proj. Engineer E.M.B.</p>	<p>WINDHAM SOLAR PHASE II</p>	<p>Date: 6/15/2018</p>
<p>Date: 6/15/2018</p>	<p>AREA C WATER QUALITY BASIN</p>	<p>Sheet No. 8</p>

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ROAD DESIGN PARAMETERS

- ROAD MAINTENANCE CAN BE EXPECTED OVER THE LIFE OF THE PERMANENT FACILITY.

SPECIAL PROVISIONS FOR GRADING AND EROSION CONTROL

THE CONTRACTOR SHALL PROVIDE EROSION CONTROL MEASURES AS PLANNED AND SPECIFIED FOLLOWING BEST MANAGEMENT PRACTICES AS OUTLINED BY THE STATE OF CONNECTICUT AND BEING IN CONFORMANCE WITH THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) GENERAL STORMWATER PERMIT. SEE THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) FOR EROSION CONTROL AND RESTORATION SPECIFICATIONS. UNLESS OTHERWISE NOTED OR MODIFIED HEREIN, ALL SECTIONS OF THE GENERAL CONDITIONS SHALL APPLY.

EXECUTION

- CLEARING AND GRUBBING
 - THE CONTRACTOR SHALL BE REQUIRED TO REMOVE ALL TREES, STUMPS, BRUSH, AND DEBRIS WITHIN THE GRADING LIMITS SHOWN ON THE PLANS. THE CONTRACTOR IS TO REMOVE ONLY THOSE TREES WHICH ARE DESIGNATED BY THE OWNER'S REPRESENTATIVE FOR REMOVAL, AND SHALL EXERCISE EXTREME CARE AROUND EXISTING TREES TO BE SAVED.
- TOPSOIL STRIPPING
 - TOPSOIL SHALL BE STRIPPED FROM ALL ROADWAY AREAS THROUGH THE ROOT ZONE. TOPSOIL SHALL NOT BE STRIPPED OUTSIDE OF THE DESIGNATED DISTURBANCE AREAS.
 - ANY TOPSOIL, THAT HAS BEEN STRIPPED, SHALL BE RE-SPREAD OR STOCKPILED WITHIN GRADING AREAS AND/OR USED AS FILL OUTSIDE OF THE DISTURBANCE AREAS, AS DIRECTED BY THE ENGINEER.
- EMBANKMENT CONSTRUCTION
 - EMBANKMENT CONSTRUCTION SHALL CONSIST OF THE PLACING OF SUITABLE FILL MATERIAL, AFTER TOPSOIL STRIPPING, ABOVE THE EXISTING GRADE. GENERALLY, EMBANKMENTS SHALL HAVE COMPACTED SUPPORT SLOPES OF TWO AND A HALF FEET HORIZONTAL TO ONE FOOT VERTICAL. THE MATERIAL FOR EMBANKMENT CONSTRUCTION SHALL BE OBTAINED FROM THE ACCESS ROAD EXCAVATION (SEE GEOTECHNICAL REPORT FOR RESTRICTIONS), OR ANY SUITABLE, APPROVED SOIL OBTAINED OFFSITE BY CONTRACTOR, AS DIRECTED OR APPROVED BY THE ENGINEER. THIS MATERIAL SHALL BE PLACED IN LIFTS NOT TO EXCEED 9".
 - SIDE SLOPES GREATER THAN 2.5:1 WILL NOT BE PERMITTED, UNLESS OTHERWISE NOTED ON THE PLAN.

TESTING REQUIREMENTS:

- TESTING SHALL BE PERFORMED BY A DESIGNATED INDEPENDENT TESTING AGENCY.
- SUBMIT TESTING AND INSPECTION RECORDS SPECIFIED TO THE CIVIL ENGINEER OF RECORD FOR REVIEW.
 - THE ENGINEER WILL REVIEW THE TESTING AND INSPECTION RECORDS TO CHECK CONFORMANCE WITH THE DRAWINGS AND SPECIFICATIONS. THE ENGINEER'S REVIEW DOES NOT RELIEVE THE CONSTRUCTION CONTRACTOR FROM THE RESPONSIBILITY FOR CORRECTING DEFECTIVE WORK.
- PROOF ROLLING
 - PROOF-ROLLING SHALL BE PERFORMED IN THE PRESENCE OF THE GEOTECHNICAL ENGINEER OR QUALIFIED GEOTECHNICAL REPRESENTATIVE USING A FULLY LOADED TANDEM AXLE DUMP TRUCK WITH A MINIMUM GROSS WEIGHT OF 25 TONS OR A FULLY LOADED WATER TRUCK WITH AN EQUIVALENT AXLE LOADING. PROOF-ROLLING ACCEPTANCE STANDARDS INCLUDE NO RUTTING GREATER THAN 1.5 INCHES, AND NO "PUMPING" OF THE SOIL BEHIND THE LOADED TRUCK.
- SIEVE ANALYSIS
 - SIEVE ANALYSIS SHALL BE CONDUCTED IN ACCORDANCE WITH AASHTO T27
- PROCTOR
 - PROCTORS SHALL BE DETERMINED IN ACCORDANCE WITH ASTM D-1557
- ATTERBERG LIMITS
 - ATTERBERG LIMITS SHALL BE DETERMINED IN ACCORDANCE WITH AASHTO T89 AND T90
- MOISTURE DENSITY (NUCLEAR DENSITY)
 - MOISTURE DENSITY TESTING SHALL BE DONE IN ACCORDANCE WITH AASHTO T310

SUBGRADE COMPACTION, TEST ROLLING AND AGGREGATE BASE COMPACTION:

- FILL MATERIAL
 - SOILS USED AS FILL MATERIAL SHALL BE TESTED FOR GRAIN SIZE ANALYSIS, MOISTURE CONTENT, ATTERBERG LIMITS ON FINES CONTENT, AND PROCTOR TESTS (MODIFIED DRY MAXIMUM DENSITY).
 - FOR PLACED & COMPACTED FILLS, PROVIDE ONE COMPACTION TEST PER LIFT FOR EVERY 1000 FT OF ROAD LENGTH. INCLUDE THE LOCATION, DRY DENSITY, MOISTURE CONTENT, AND COMPACTION PERCENT BASED ON MODIFIED PROCTOR MAXIMUM DRY DENSITY.
 - IN ROADWAY CUT AREAS, OR WHERE EMBANKMENT CONSTRUCTION REQUIRES LESS THAN 12 INCHES OF FILL PLACEMENT, COMPACT TO A MINIMUM OF 95 PERCENT OF THE MATERIAL'S MODIFIED PROCTOR MAXIMUM DRY DENSITY.
- COMPACTED SUBGRADE
 - THE ENTIRE SUBGRADE SHALL BE PROOF-ROLLED PRIOR TO THE PLACEMENT OF THE AGGREGATE BASE TO IDENTIFY AREAS OF UNSTABLE SUBGRADE.
 - IF PROOF ROLLING DETERMINES THAT THE SUBGRADE STABILIZATION CANNOT BE ACHIEVED, THE FOLLOWING ALTERNATIVES WILL BE IMPLEMENTED:
 - REMOVE UNSUITABLE MATERIAL AND REPLACE WITH SUITABLE EMBANKMENT.
 - SCARIFY, DRY, AND RECOMPACT SUBGRADE AND PERFORM ADDITIONAL PROOF ROLL.
 - INCREASE ROAD BASE THICKNESS.
 - PROVIDE 1 MOISTURE DENSITY COMPACTION TESTS FOR EVERY 1000 L.F. OF ROAD LENGTH. COMPACTED SUBGRADE MUST BE COMPACTED TO A MINIMUM OF 95% MODIFIED PROCTOR MAXIMUM DRY DENSITY AT ±3% OF OPTIMUM MOISTURE CONTENT FOR GRANULAR SOILS AND AT ±1 TO ±3% OF OPTIMUM MOISTURE CONTENT FOR COHESIVE SOILS.
- AGGREGATE BASE
 - AGGREGATE BASE SHALL BE PROOF-ROLLED OVER THE ENTIRE LENGTH. PROVIDE 1 SIEVE ANALYSIS PER 2500 CY OF ROAD BASE PLACED.
 - IF PROOF ROLLING DETERMINES THAT THE ROAD IS UNSTABLE, ADDITIONAL AGGREGATE SHALL BE ADDED UNTIL THE UNSTABLE SECTION IS ABLE TO PASS A PROOF ROLL.

LOCATION	TEST	FREQUENCY
STRUCTURAL FILL	GRAIN SIZE ANALYSIS, MOISTURE CONTENT, ATTERBERG LIMITS ON FINES CONTENT, AND PROCTOR	1 PER MAJOR SOIL TYPE
	MOISTURE DENSITY	1 PER 2,000 CY OR MIN. 1 PER LIFT
COMPACTED SUBGRADE	PROOF-ROLL	ENTIRE LENGTH
	MOISTURE DENSITY TEST (NUCLEAR DENSITY)	1 PER 1,000 FT OR MIN. 5 FOR THE SITE
AGGREGATE BASE	PROOF-ROLL	ENTIRE LENGTH
	SIEVE ANALYSIS	1 PER 2,500 CY

GENERAL NOTES:

- THE PLANIMETRIC FEATURES, GROUND SURFACE CONTOURS ON A LIDAR SURFACE PROVIDED NOAA.
- NO GRADING OR SOIL DISTURBANCE IS PERMITTED OUTSIDE OF THE GRADING LIMITS IDENTIFIED ON THE PLANS.
- GRADE ALL PROPOSED ROADS TO THE SLOPES PROPOSED ON THE PLANS.
- THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING DRAINAGE THROUGHOUT THE CONSTRUCTION OF THIS PROJECT. CONSTRUCTION ACTIVITIES SHALL NOT BLOCK THE NATURAL OR MANMADE CREEKS OR DRAINAGE SWALES CAUSING RAINWATER TO POND. ADDITIONAL CULVERTS IN EXCESS OF THOSE ON THE PLANS MAY BE REQUIRED AS APPROVED BY THE ENGINEER.
- THE CONTRACTOR SHALL NOTIFY DIGSAFE AT LEAST 48 HOURS BEFORE EXCAVATION ACTIVITIES COMMENCE.
- WETLAND INFORMATION SHOWN ON THE PLAN WAS PROVIDED BY ROB HELLSTROM LAND SURVEYING AND FLAGGED BY HIGHLANDS SOILS. THE GENERAL CONTRACTOR SHALL VERIFY THAT ALL WETLAND PERMITS HAVE BEEN SUBMITTED AND APPROVED PRIOR TO CONSTRUCTION COMMENCING.
- ELECTRICAL COLLECTION SYSTEM SHOWN ON THE PLAN SHALL BE CONSIDERED PRELIMINARY. CONTRACTOR SHALL REFER TO FINAL ELECTRICAL DESIGN PLANS FOR ACTUAL DESIGN LOCATIONS.

STORMWATER POLLUTION PREVENTION PLAN (SWPPP):

- REFER TO THE SWPPP BOOKLET FOR SEDIMENT AND EROSION CONTROL PROCEDURES, LOCATIONS OF BMPs, DETAILS, AND INSPECTION INFORMATION.
- ALL AREAS DISTURBED DURING CONSTRUCTION ACTIVITIES AND NOT COVERED BY ROAD SURFACING MATERIALS, SHALL BE SEEDED IN ACCORDANCE WITH THE SWPPP PLAN.
- TEMPORARY EROSION CONTROL SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE TEMPORARY EROSION CONTROL PLAN SHALL BE IN ACCORDANCE WITH STATE OF CONNECTICUT, THE EPA, AND THE SWPPP ON FILE.

SLOPE STABILIZATION:

ALL AREAS DESIGNATED ON THE PLAN FOR SLOPE STABILIZATION SHALL BE GRADED AND COMPACTED, SMOOTH AND CLEAN TO THE FINISH CONTOURS SHOWN ON THE PLAN, WITH A MINIMUM OF 4 INCHES OF TOPSOIL PLACED ON THE AREA. STABILIZATION SHALL BE ACHIEVED IN ONE OF TWO MANNERS:

- EITHER: 1) HAND-PLACED RIPRAP
OR
2) SEED WITH EROSION CONTROL AND REVEGETATION MAT (ECRM)

1. PLACEMENT OF RIP-RAP

RIPRAP HAND PLACED. HAND-PLACED RIPRAP SHALL CONSIST OF ROUGH UNHEWN QUARRY STONES, APPROXIMATELY RECTANGULAR, PLACED DIRECTLY ON THE SPECIFIED SLOPES OR SURFACES. IT SHALL BE SO LAID THAT THE WEIGHT OF THE LARGE STONES IS CARRIED BY THE SOIL RATHER THAN BY ADJACENT STONES. STONES SHALL WEIGH BETWEEN 50 AND 150 LB. EACH AND AT LEAST 60% OF THEM SHALL WEIGH MORE THAN 100 LB. EACH WHEN USED ON EMBANKMENT CONSTRUCTION. RIP RAP FOR BMPs SHALL BE 6"-8" DIA. PREPARATION FOR HAND-PLACED RIP RAP. BEFORE ANY RIP RAP IS PLACED, THE SURFACE TO BE COVERED SHALL BE FULLY COMPACTED AND GRADED TO THE REQUIRED SLOPE. PLACE MIRAFITM8 OR APPROVED EQUAL GEOTEXTILE ON SLOPE. RIP RAP ON SLOPES SHALL COMMENCE COMMENCE IN A TRENCH BELOW THE TOW OF THE SLOPE AND SHALL PROGRESS UPWARD, EACH STONE BEING LAID BY HAND PERPENDICULAR TO THE SLOPE WITH THE LONG DIMENSION VERTICAL, FIRMLY BEDDED AGAINST THE SLOPE AND AGAINST THE ADJOINING STONE, WITH ENDS IN CONTACT, AND WITH WELL-BROKEN JOINTS. SIMILAR METHODS SHALL BE USED WHEN LAYING RIPRAP ON STREAM BEDS, IN DITCHES, AND ON LEVEL SURFACES.

THE FINISHED SURFACE OF THE RIPRAP SHALL PRESENT AN EVEN, TIGHT SURFACE, NOT LESS THAN 12 INCHES THICK, MEASURED PERPENDICULAR TO THE SLOPE.

THE STONES WEIGHING MORE THAN 100 LB. SHALL BE WELL DISPersed THROUGHOUT THE AREA WITH THE 50-100 LB. STONES LAID BETWEEN THEM IN SUCH A MANNER THAT ALL STONES WILL BE IN CLOSE CONTACT. THE REMAINING VOIDS SHALL BE FILLED WITH SPALLS OF SUITABLE SIZE AND WELL TAMPED TO PRODUCE A FIRM AND COMPACT REVETMENT.

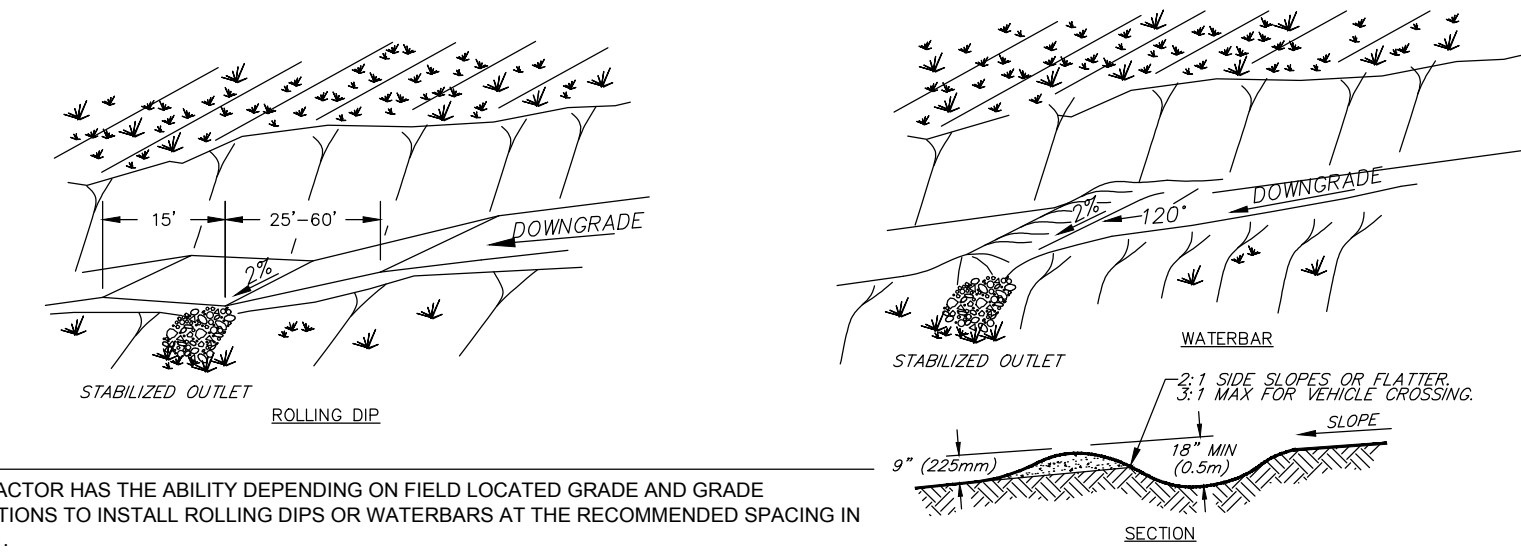
2. STABILIZATION WITH EROSION CONTROL AND REVEGETATION MAT (ECRM)

- AREA MUST BE GRADED SMOOTH AND CLEAN TO FINISH GRADES, AND COMPACTED.
- SEED AND MULCH AREA. USE SEED MIX APPROVED BY THE ENGINEER.
- INSTALL ECRM PER MANUFACTURER'S INSTRUCTIONS, HOWEVER THESE MUST INCLUDE THE FOLLOWING MINIMUM REQUIREMENTS:
 - GRADE GROUND TO FINISH CONTOURS. REMOVE ALL ROCKS, DIRT CLOUDS, STUMPS, ROOTS, TRASH, AND OTHER OBSTRUCTIONS LYING IN DIRECT CONTACT WITH THE SOIL SURFACE.
 - DIG MAT ANCHOR TRENCHES (MINIMUM 12" DEEP, 6" WIDE) AT TERMINAL ENDS AND PERIMETER SIDES WHERE MAT IS TO BE INSTALLED.
 - INSTALL MAT BY ROLLING UPHILL PARALLEL TO WATER FLOW, STARTING AT TRENCH. OVERLAP ROLLS BY MINIMUM OF 3". FASTEN TO GROUND WITH 18" PINS AND 1 1/2" WASHERS, OR EQUIVALENT. PIN MAT AT ENDS, AND EVERY 3' TO 5' ALONG OVERLAPS. DO NOT STRETCH MAT. SPLICING ROLLS SHOULD BE DONE IN A CHECK SLOT. BACKFILL TO COVER ENDS AND FASTENERS. ROLLING MAT ACROSS BACKFILL AND PIN AGAIN.

FOR MAT USE NORTH AMERICAN GREEN S-150.

INVASIVE SPECIES:

- ALL EQUIPMENT SHALL BE INSPECTED UPON ARRIVAL. EQUIPMENT ARRIVING WITH OBSERVABLE SOIL OR PLANT FRAGMENTS WILL BE REMOVED AND CLEANED.
- HAY BALES ARE NOT TO BE USED ON SITE; ONLY WEED-FREE STRAW BALES ARE APPROVED.
- OFF-SITE TOPSOIL MUST BE FREE OF INVASIVE SPECIES. THE ENGINEER SHALL BE NOTIFIED OF THE TOPSOIL SOURCE 6 WEEKS BEFORE DELIVERY.



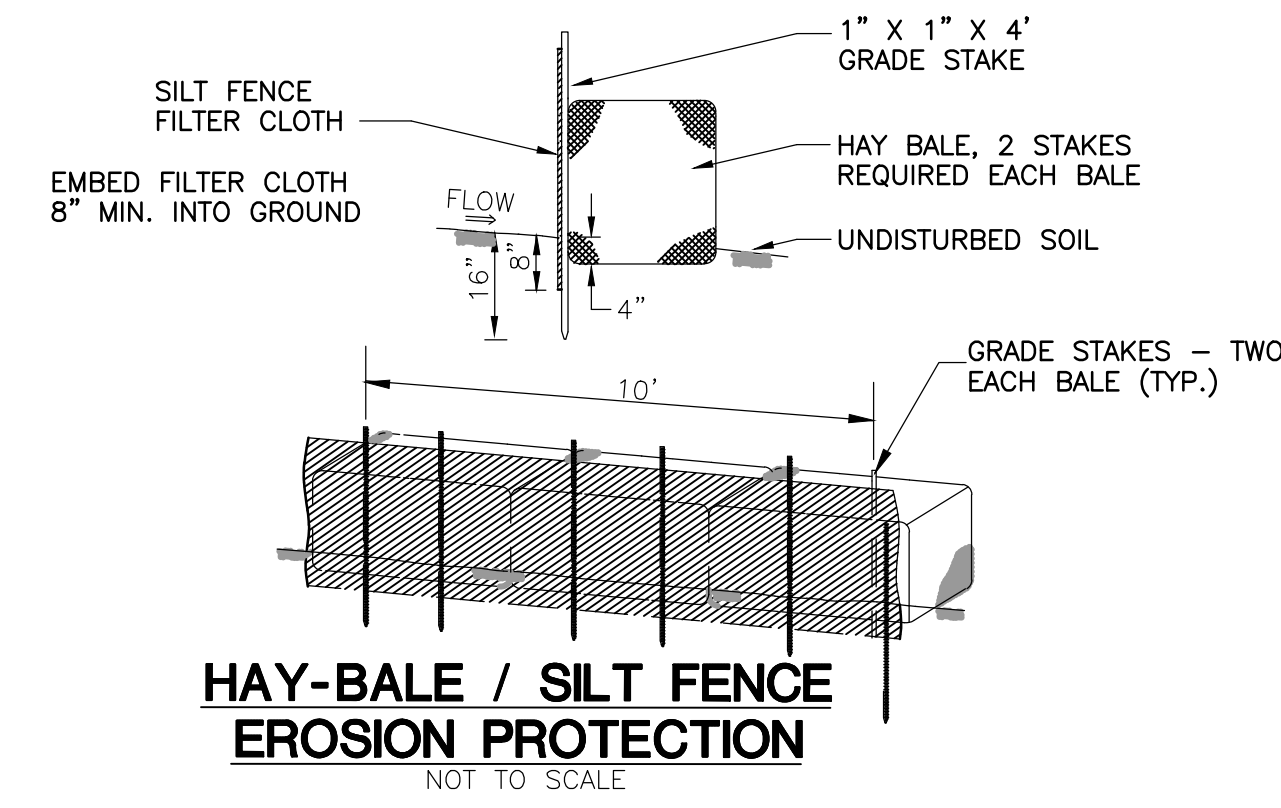
- NOTE:**
- CONTRACTOR HAS THE ABILITY DEPENDING ON FIELD LOCATED GRADE AND GRADE TRANSITIONS TO INSTALL ROLLING DIPS OR WATERBARS AT THE RECOMMENDED SPACING IN TABLE 1.
 - ROLLING DIPS AND WATERBARS WILL REQUIRE MAINTENANCE FOLLOWING RAINFALL EVENTS TO ENSURE FUNCTIONALITY.
 - THE ROLLING DIPS AND WATERBARS SHOULD BE BUILT AT AN ANGLE OF 45° TO 60° FROM THE CENTERLINE.
 - THE DIVERSION SHOULD HAVE A POSITIVE GRADE OF 2% MINIMUM.
 - FOR ROLLING DIPS, THE HEIGHT FROM CHANNEL BOTTOM TO THE TOP OF THE SETTLED RIDGE SHALL BE 18 INCHES AND THE SIDE SLOPES OF THE RIDGE SHALL BE 2:1 OR FLATTER.
 - STABLE OUTLETS SHALL EITHER BE AN EXTENSION OF AN ADJACENT SWALE, OR 2 CU. YD. 6" RIP RAP AT OTHER LOCATIONS.
 - SEDIMENT SHALL BE REMOVED FROM THE FLOW AREA THROUGHOUT THE DURATION OF THE PROJECT. REFER TO THE PROJECT'S STORMWATER O&M MANUAL.

SLOPE (%)	SPACING (FT)
<5	125
5-10	100
10-20	75

ROLLING DIP AND WATERBAR

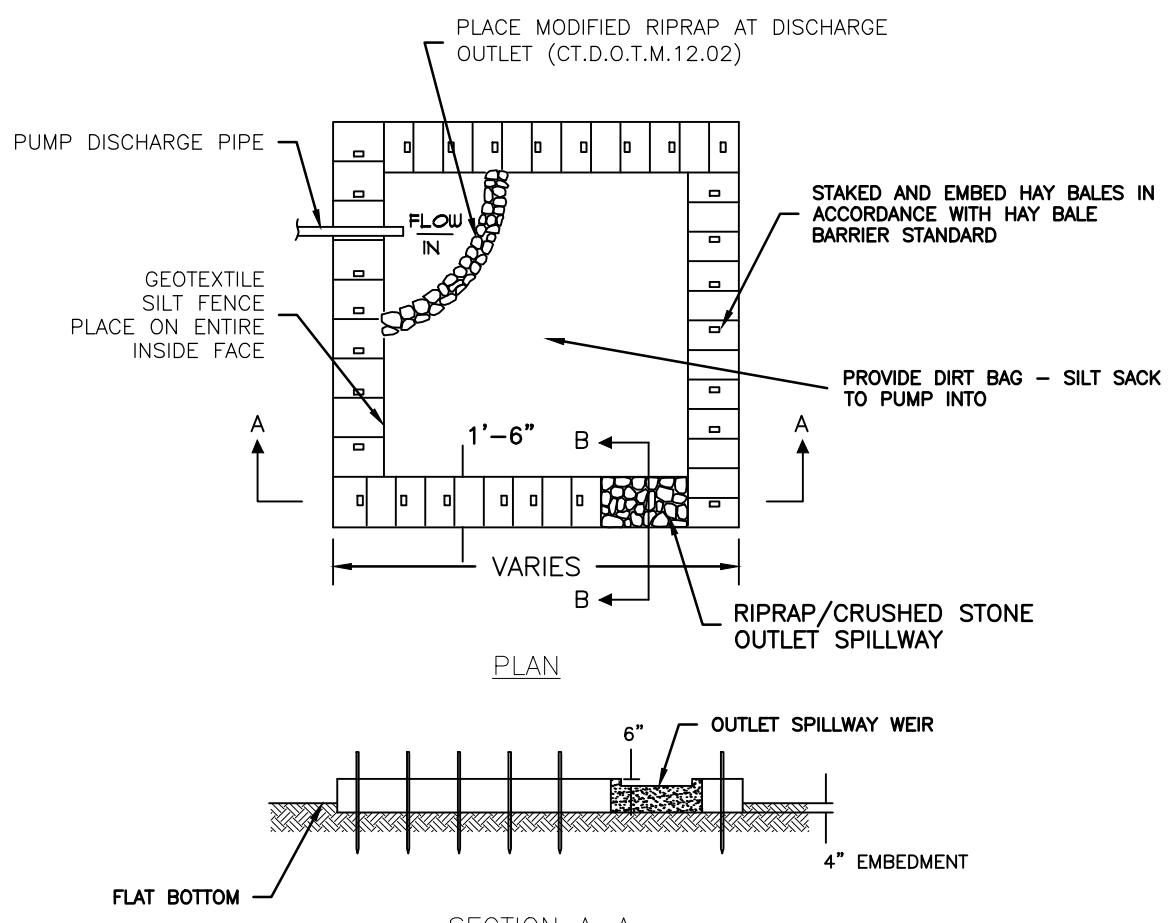
CONSTRUCTION SEQUENCE:

- NOTIFY THE TOWNS OF LEBANON AND FRANKLIN INLAND WETLANDS AGENTS OF START OF CONSTRUCTION A MINIMUM OF 48 HOURS IN ADVANCE.
- ANY DEWATERING WILL BE MONITORED BY A QUALIFIED ENVIRONMENTAL PROFESSIONAL TO MAINTAIN SUITABLE QUALITY OF DISCHARGE FROM THE DEWATERING AND TO ENSURE REMOVAL OF ACCUMULATED SEDIMENTS AT APPROPRIATE INTERVALS. SEDIMENTS WILL BE DISPOSED OF AT AN APPROPRIATE ON-SITE LOCATION. DEWATERING WILL DISCHARGE INTO TEMPORARY SEDIMENT TRAPS.
- ESTABLISH ALL ADDITIONAL EROSION AND SEDIMENTATION CONTROLS AND HAVE THEM INSPECTED BY THE SITE INSPECTOR.
- INSPECT CONSTRUCTION SITE ENTRANCE FROM MAIN ROAD AND RESTORE AS NEEDED.
- INSTALL LOW WATER CROSSING AND CONSTRUCTION ENTRANCE FOR AREAS A AND B
- INSTALL SWALES AND SEDIMENT TRAPS FOR AREAS A, B AND C WITH EROSION MAT AS INDICATED ON PLANS
- INSTALL SOLAR PANELS IN AREAS A, B, AND C. HYDROSEED OR SEED AND MULCH AROUND PANELS ON COMPLETION OF EVERY TWO ROWS, AND MAINTAIN.
- INSTALL CHAIN LINK FENCE AROUND PERIMETER.
- OVERSEED DISTURBED SOILS WHEN ALL SOLAR PANEL INSTALLATION IS COMPLETE.
- CLEAN SEDIMENTS BASINS AND GRADE AND RE-SEED FOR USE AS STORMWATER BASINS WHEN SITE INSPECTOR DEEMS SOILS ARE STABILIZED.
- INSTALL PLANTINGS THE
- MAINTAIN E&S AND PROVIDE REPORTS TO TOWNS AND CTDEEP

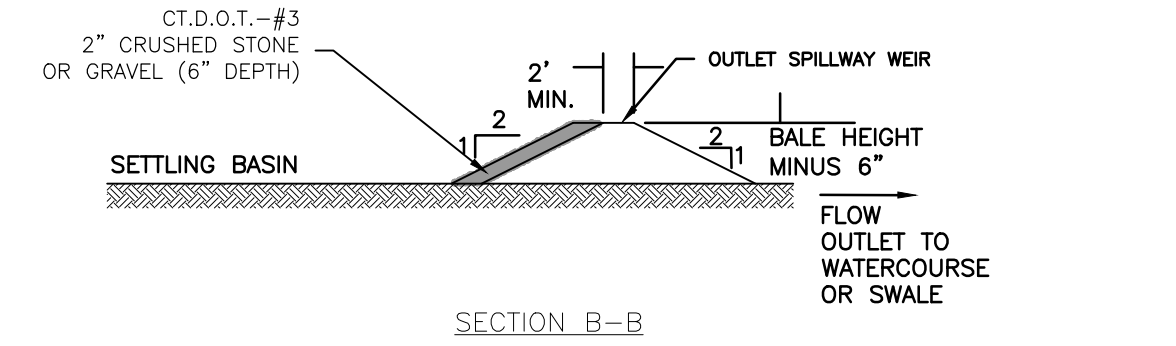


CONSTRUCTION NOTES:

- SILT FENCE FILTER CLOTH TO BE SECURELY FASTENED TO GRADE STAKE WITH STAPLES, 6" ON CENTER.
- WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN ONE ANOTHER THEY SHALL OVERLAP BY 6" AND BE FOLDED.
- BALES SHALL BE PLACED IN A ROW WITH ENDS TIGHTLY ABUTTING THE ADJACENT BALES.



NOTE: DIMENSIONS VARY ACCORDING TO PUMPING RATES. MINIMUM REQUIRED STORAGE IS CALCULATED FROM CREST OF SPILLWAY WEIR.

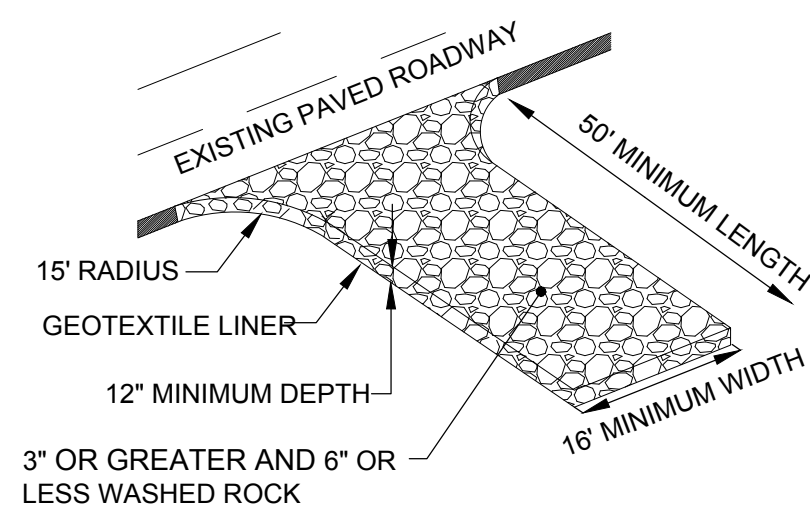


DEWATERING SETTLING BASIN DETAIL

DEWATERING PLAN

- IF DEWATERING IS NECESSARY DURING CONSTRUCTION A CLEAR WATER DISCHARGE SHALL BE PROVIDED AS FOLLOWS:
- THE PUMP INLET WILL BE WRAPPED IN FILTER FABRIC AND PLACED IN CRUSHED STONE WITHIN THE TRENCH.
 - THE PUMP OUTLET WILL DISCHARGE TO THE DEWATERING ENCLOSURE PER THE DETAIL. FOR DEWATERING SETTLING BASIN TO BE LOCATED OUTSIDE OF THE 100' UPLAND REVIEW ZONE.
 - THE DISCHARGE FROM THE DEWATERING ENCLOSURE WILL BE MONITORED AND ADDITIONAL MEASURES EMPLOYED IF NECESSARY.

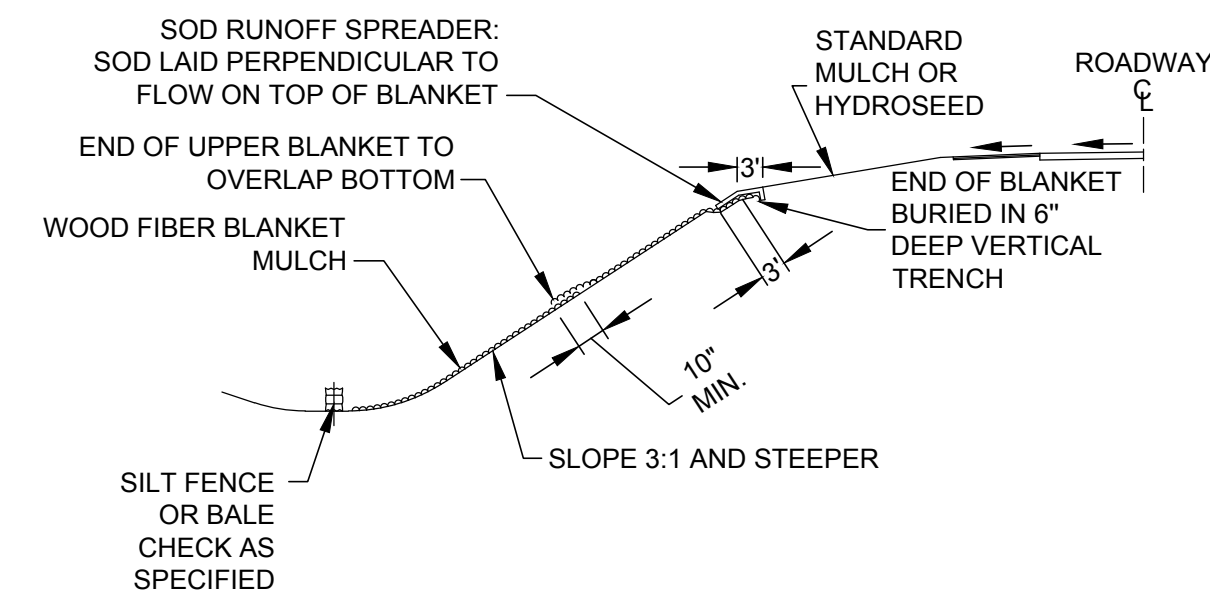
<p>CLA Engineers, Inc. Civil • Structural • Surveying</p> <p>317 Main Street Norwich, Connecticut (860) 886-1966 Fax (860) 886-9165</p>			Project No. CLA-6126
			Proj. Engineer E.M.B.
<p>1 WILLIAMS CROSSING ROAD LEBANON, CT 06249</p>			Date: 6/22/18
<p>WINDHAM SOLAR PHASE II</p>			Sheet No. 9
<p>CIVIL NOTES AND DETAILS</p>			



NOTE:

ROCK CONSTRUCTION ENTRANCE SHOULD BE A MINIMUM THICKNESS OF 1.0' AND CONTAIN MAXIMUM SIDE SLOPES OF 4:1. ROCK ENTRANCE SHOULD BE INSPECTED AND MAINTAINED REGULARLY. ROCK ENTRANCE LENGTH MAY NEED TO BE EXTENDED IN CLAY SOILS.

ROCK CONSTRUCTION ENTRANCE



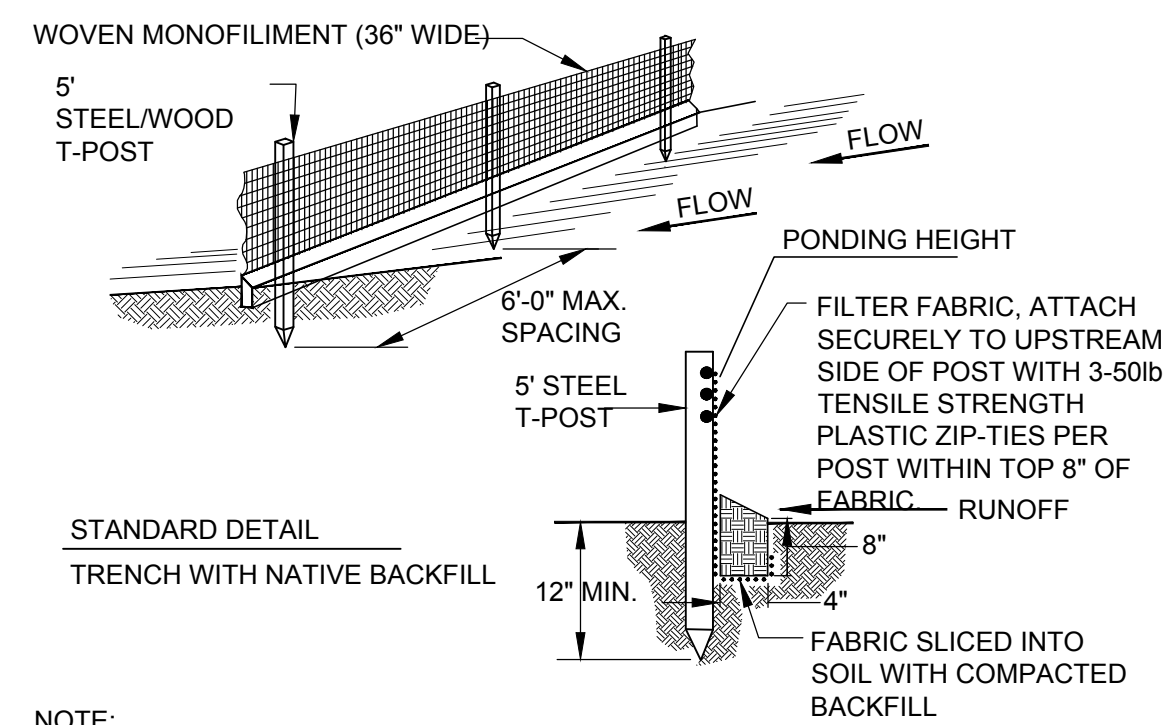
EROSION CONTROL BLANKET INSTALLATION ON AN INSLOPE (WHEN REQUIRED)

CATEGORY	SLOPE	VELOCITY
1	FLAT	-
2	3:1	< 5.0 fps
3	3:1	< 6.5 fps
4	2:1	< 7.0 fps

CATEGORY	ACCEPTABLE TYPES
1	STRAW RD 1S, WOOD FIBER RD 1S
2	STRAW 1S, WOOD FIBER 1S
3	STRAW 2S, WOOD FIBER 2S
4	STRAW/COCONUT 2S, WOOD FIBER HV 2S

THE LETTERING DESIGNATION SHALL BE DEFINED AS FOLLOWS:
 1S - NETTING ON ONE SIDE
 RD - RAPIDLY DEGRADABLE
 2S - NETTING ON TWO SIDES
 HV - HIGH VELOCITY

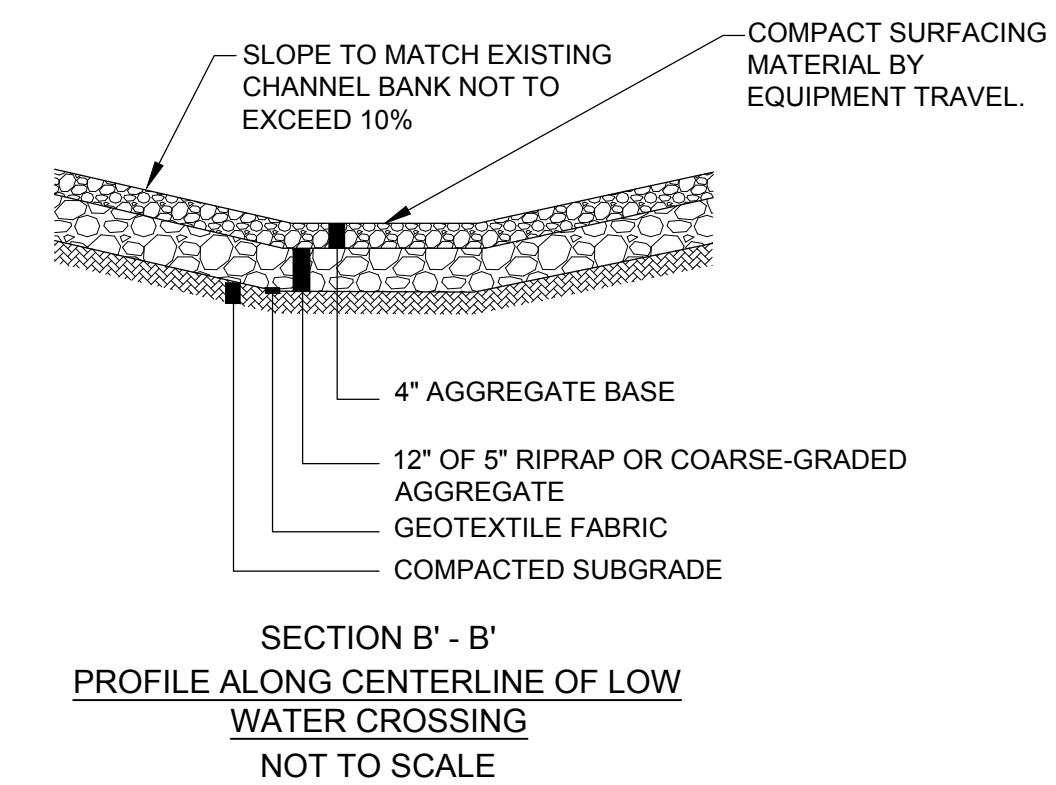
EROSION CONTROL BLANKET



NOTE:

- INSPECT AND REPAIR FENCE AFTER EACH STORM EVENT AND REMOVE SEDIMENT WHEN ACCUMULATED TO 1/3 THE HEIGHT OF THE FABRIC OR MORE.
- REMOVED SEDIMENT SHALL BE DEPOSITED TO AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED.
- SILT FENCE SHALL BE PLACED ON SLOPE CONTOURS TO MAXIMIZE PONDING EFFICIENCY.
- ALL ENDS OF THE SILT FENCE SHALL BE WRAPPED UPSLOPE SO THE ELEVATION OF THE BOTTOM OF FABRIC IS HIGHER THAN "PONDING HEIGHT".

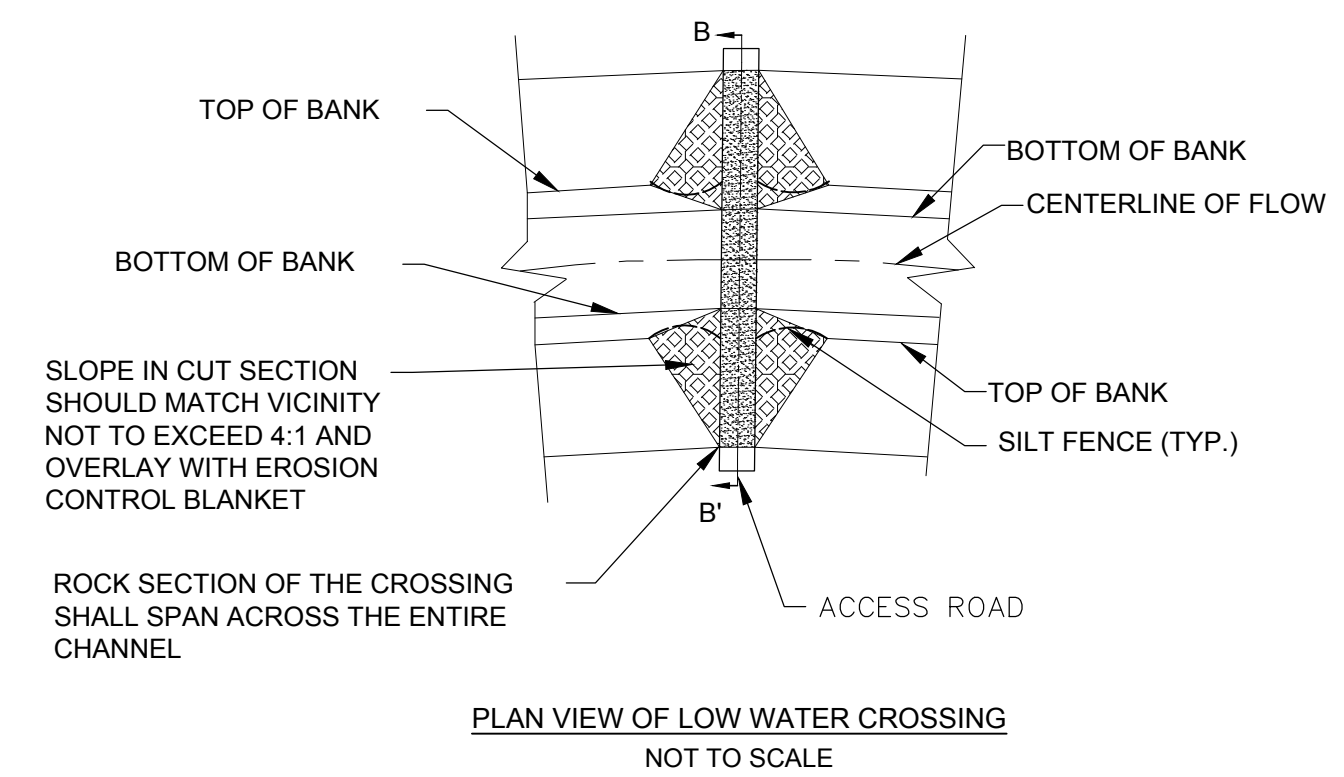
SILT FENCE



NOTE:

- CROSSINGS SHALL HAVE THE TOP-MOST SURFACE LAYER EVEN OR BELOW THE ELEVATION OF THE EXISTING WETLAND.
- THE ACCESS ROAD SHALL CROSS THE CONVEYANCE AT 90° ANGLE.
- THE TOP BED OF THE ROCK CHANNEL CROSSING SHALL CONFORM TO THE EXISTING DITCH CROSS SECTIONAL SLOPES.
- MATERIAL THICKNESSES MAY BE FIELD ADJUSTED TO ACHIEVE SUFFICIENT BEARING CAPACITIES AS ARE NECESSARY FOR ANTICIPATED ROAD USE.

LOW WATER CROSSING



No.	Date	Revision
2	6/07/18	REVISED PLANS

1 WILLIAMS CROSSING ROAD LEBANON, CT 06249		Project No. CLA-6126
WINDHAM SOLAR PHASE II		Proj. Engineer E.M.B.
CIVIL NOTES AND DETAILS		Date: 6/22/18
		Sheet No. 10

Exhibit B

Wetland Report Update

HIGHLAND SOILS, LLC

WETLAND REPORT

WINDHAM SOLAR PETITION NO. 1137 AMENDMENT #2 APRIL 10TH, 2018

1 WILLIAMS CROSSING DRIVE
LEBANON, CONNECTICUT

PREPARED FOR

ECOS ENERGY

BY

JOHN P. IANNI
PROFESSIONAL SOIL SCIENTIST

APRIL 2018

HIGHLAND SOILS, LLC

INTRODUCTION

ECOS Energy is seeking a small expansion to a previously approved and constructed facility. The site was previously described in a report prepared by Highland Soils, LLC, dated January 2015.

The proposal includes activity with 100 feet of a regulated wetland.

The wetland resource, subject to this application, consists of an isolated hillside seep wetland. The soils in the wetland overlay a friable glacial till and were identified as belonging to the poorly drained Leicester Series. These soils have a seasonally high water table that dissipates by late spring, by summer; no water table was noted within the rooting zone or upper 30 inches of the soil surface. In the spring, and during high ground water periods, the soils can be saturated up to the soil surface.

The vegetation within the wetland has been historically manipulated. The disturbances have been by agricultural practices and more recently by a land clearing operation. Regrowth of vegetation is limited to stump sprouts, shrub growth and herbaceous species. The dominant species in the wetland include Rye grass, Sensitive fern, Wild grape, Oriental bittersweet, Soft rush, Wool grass, Honeysuckle, Dogwood, Highbush Blueberry, Purple loosestrife, Cinnamon fern, Red maple, Goldenrod, Multiflora rose and Sphagnum moss.

The wetland has minimal wetland functions and values but those functions that are represented are associated with water quality and include Sediment/Toxicant/Pathogen Retention and Nutrient Removal/Retention/Transformation. The wetland is also a ground water discharge wetland with a minor component of shallow ground water recharge.

The activity that is proposed within the 100 foot upland review area includes the placement of a few solar panels, minor grading, the construction of a sediment basin and fencing. None of these activities are within wetlands and all of the activity is at least 75 or more from the isolated wetland.

The proposed activity will not impact the limited functions and values of the wetland. I have taken the liberty of attaching the Functions and Values Section of my previous report as well as my original conclusions.

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WETLAND FUNCTIONS (from Wetland Report January 2015)

The Functions and Values assessment is for the Cold Brook Wetland System. The two isolated wetland systems have minimal potential for the listed functions and values and were not included in this portion of the report. A brief explanation of the functions and values of the two isolated wetlands will be given at the end of this section.

The functions and values of the wetlands will be described in a qualitative manner modeled after the method used by the US Army Corps of Engineers. The information is from *The Highway Methodology Workbook Supplement*. This publication uses a descriptive approach to assessing functional values, versus the CT D.E.E.P. approach, which uses a quantitative or numerical approach to ranking wetland functions and values.

Ground Water Recharge/Discharge - This function considers the potential for a wetland to serve as a ground water recharge and/or discharge area. It refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

The wetland has both discharge and recharge functions. The upper third of the on-site wetland has ground water discharge indicators. Numerous seepage zones were noted along the edges of the wetland. The bottom of the wetland system flows through sand and gravel. In this area seepage zones were not present and stream flows were visibly lower than higher in the watershed. No evidence of over the bank flows was noted along the length of the channel.

Floodflow Alteration - This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of flood waters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas.

No areas of natural detention were noted. There is a constant gradient within the wetlands and no signs of ponding were present. This is not a primary function of the Cold Brook wetland system.

Fish and Shellfish Habitat - This function considers the effectiveness of seasonal or permanent watercourses associated with wetland in question for fish and shellfish habitat.

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Although Cold Brook is listed as a perennial stream, the site is located in the upper reaches of the watershed and the water course is not well developed. In the summer, flows can be non-persistent and the presence of sand and gravel in the lower portion of the property indicate the on-site portion of the Brook is not a habitat for cold water fisheries. As the Brook crosses the railroad tracks the cross culverts are positioned too high to allow for fish passage. This is not a primary function of the wetlands.

Sediment/Toxicant/Pathogen Retention - This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants or pathogens in runoff water from surrounding uplands, or upstream eroding wetland areas.

The upper portion of the wetland with its wide area and diffuse surface flows do provide potential for this function. The lower part of the wetland has less potential due to the narrowness for the water course and lack of over-bank flows. The watershed above the property is mostly undeveloped and there are few sources of sediment/toxicants/pathogens in the watershed above the site. This is a primary function of the wetlands.

Nutrient Removal/Retention/Transformation - This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands, and the ability of the wetlands to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or surface waters such as ponds, lakes, streams, rivers or estuaries.

As with the previous function the upper part of the Cold Brook system has potential for this function. The lower part of the resources has less potential due to the presence of a defined water course. Overall, this is a primary function of the wetlands.

Production Export - This function relates to the effectiveness of the wetland to produce food or usable products for human, or other living organisms.

Organic matter production does occur in the wetlands, however, export is limited. This is not a primary function of the wetland.

Sediment/Shoreline Stabilization - This function evaluates the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

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The wetland soils associated with Cold Brook provide buffering capacity for the Brook. This is a primary function.

Wildlife Habitat - This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and wetland edge. Both resident and/or migrating species are considered.

Wildlife utilization of the property has changed because of clear-cutting, which has spurred regrowth and provides habitat for birds and small mammals. The lack of diversity in wetland types and cover classes limits the effectiveness for this function. The lack of permanent open water in the form of deep water or shallow water marshes is also a limiting factor. Although utilization of the site occurs, based on this specific methodology the on-site wetlands are not primary wildlife habitat wetlands.

Recreation – (Consumptive and Non-Consumptive) This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting and other active or passive recreational activities.

The site is suitable for passive recreation; however, water based recreation is not suitable on this site. The site has limited potential for this value.

Educational/Scientific Value - This function considers the suitability of the wetland as an “outdoor classroom” or for scientific research.

The site has been utilized for agriculture and shows the typical indicators. The recent clear-cutting has lowered the potential for this value. The site has limited resources for this value. This is not a primary value for the wetlands.

Uniqueness/Heritage - This value considers the effectiveness of the wetland for special values such as archeological sites, rare and endangered species habitat or uniqueness for its location.

The site is fairly typical for the area. Some of the site is tilled for agriculture and the remainder contains altered vegetation with no unique habitat or other unique natural resources.

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Visual Qualities/Aesthetics - This value relates to the visual qualities of the wetlands.

The visual aspects of the wetlands have been completely altered by a clear cut. Other than slight variations in individual species the wetlands are not that different from the uplands.

Endangered Species Habitat – This value considers the suitability of the wetland to support threatened or endangered species.

There are no listings for this property or the immediate area, based on a review of the Natural Diversity Data Base maintained by the State of Connecticut Department Of Energy and Environmental Protection.

SUMMARY AND RECOMMENDATIONS (from Wetland Report January 2015)

In summary, the Cold Brook wetland system is a ground water recharge and discharge system. The wetlands do function in the realm of water quality but have no potential for flood control or alteration of flood flows. The wetlands are typical for the area and are not known to be habitat for rare or endangered species.

The isolated man-made wetland appears to have been created as an extension of a ground water control swale adjacent to the upper corn field. The swale has a flat gradient and no erasable velocities were noted. This man-made feature is a ground water discharge wetland created in glacial till. Other than the ability to capture sediment in runoff from the corn field it has no other discernable wetland function.

The other isolated wetland is a natural feature that exhibits a mainly mesic or upland composition of vegetation. There is no surface water associated with the wetland, and other than a few wetland indicator species, the area does not have the outward appearance of a wetland.

With the minimal functionality of the two isolated wetlands, and considering the proposed activity associated with the site development, it is my professional opinion that the 100-foot upland review areas for these two wetlands are not necessary to protect the resource. A minimal set-back to allow for construction and maintenance of the solar panels is all that is required for these resources.

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A 100-foot set-back from the upper part of the Cold Brook wetlands would preserve the slope leading down to the wetlands and would help to restore some of the natural buffer along the Brook. The lower part of the Cold Brook wetland system has gentle slopes and less habitat potential. A reduction in the upland review area could be accomplished without compromising the integrity of the resource.

Exhibit C

System racking and foundations

GameChange Solar

Repowering the Planet by Repurposing Landfills



**LET'S REPOWER
THE PLANET.**

GAMECHANGE SOLAR
REPOWERING THE PLANET

Industry Research

“The project uses a GameChange Solar round tub racking, which allows any drainage to have little to no impact. ...”

EPA

The U.S. Environmental Protection Agency

RE-Powering America's Land Initiative: Project Tracking Matrix



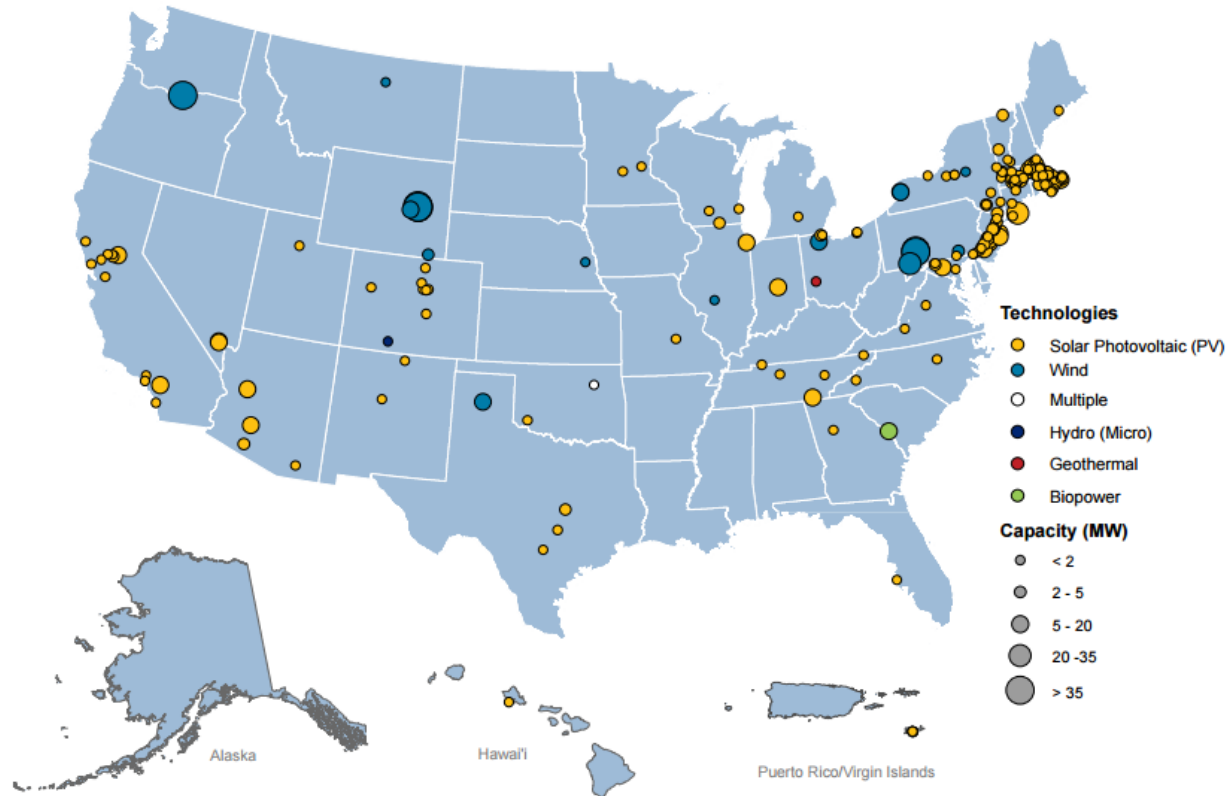
EPA Whitepaper on Solar Landfill Development

The U.S. Environmental Protection Agency (EPA) recognizes the overall environmental benefit of siting renewable energy projects on contaminated properties. Through the RE-Powering America's Land Initiative, EPA is encouraging renewable energy development on current and formerly contaminated lands, landfills, and mine sites when such development is aligned with the community's vision for the site.

**LET'S REPOWER
THE PLANET.**

GAMECHANGE SOLAR
REPOWERING THE PLANET

190 Renewable Energy Projects, Over 1.1 Gigawatt Installed Capacity



This map is for informational purposes only. The information was gathered from public announcements of renewable energy projects in the form of company press releases, news releases, and, in some cases, conversations with the parties involved. This map may not be a comprehensive representation of all completed renewable energy projects on contaminated lands. To provide information on additional projects, please email cleanenergy@epa.gov.

October 2016

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National Deployment

INSTALLATIONS BY STATE OR TERRITORY ²						
State	# Installations	Installed Capacity (MW)	State Renewable Portfolio Standard ³	Solar Set-Aside Policy ⁴	Solar Multiplier Policy ⁵	Distributed Generation Requirement ⁶
MA	64	142.7	✓	✓		
NJ	15	82.9	✓	✓		
NY	14	76.1	✓			✓
CA	13	104.9	✓			
CO	8	7.1	✓		✓	✓
OH	6	11.7	✓	✓		
PA	6	178.5	✓	✓		
WY	5	295.8				
AZ	4	30.0	✓		✓	✓
MD	4	23.1	✓	✓		
TX	4	14.6	✓ ⁷		✓ ⁸	
TN	4	10.1				
VT	4	5.3	✓			✓
WI	3	2.9	✓			
NV	2	28.2	✓	✓	✓	
IL	2	10.9	✓	✓		✓
NM	2	3.0	✓	✓		✓
CT	2	1.7	✓			
VA	2	1.6	✓ ⁹			
DE	2	0.7	✓	✓	✓	
NC	2	0.6	✓	✓		
OK	2	0.0	✓ ¹⁰			
MN	2	0.5	✓	✓ ¹¹		✓
OR	1	100.0	✓	✓	✓	✓ ¹²
ROUS ¹³	17	39.9				
TOTAL	190	1,172.9				

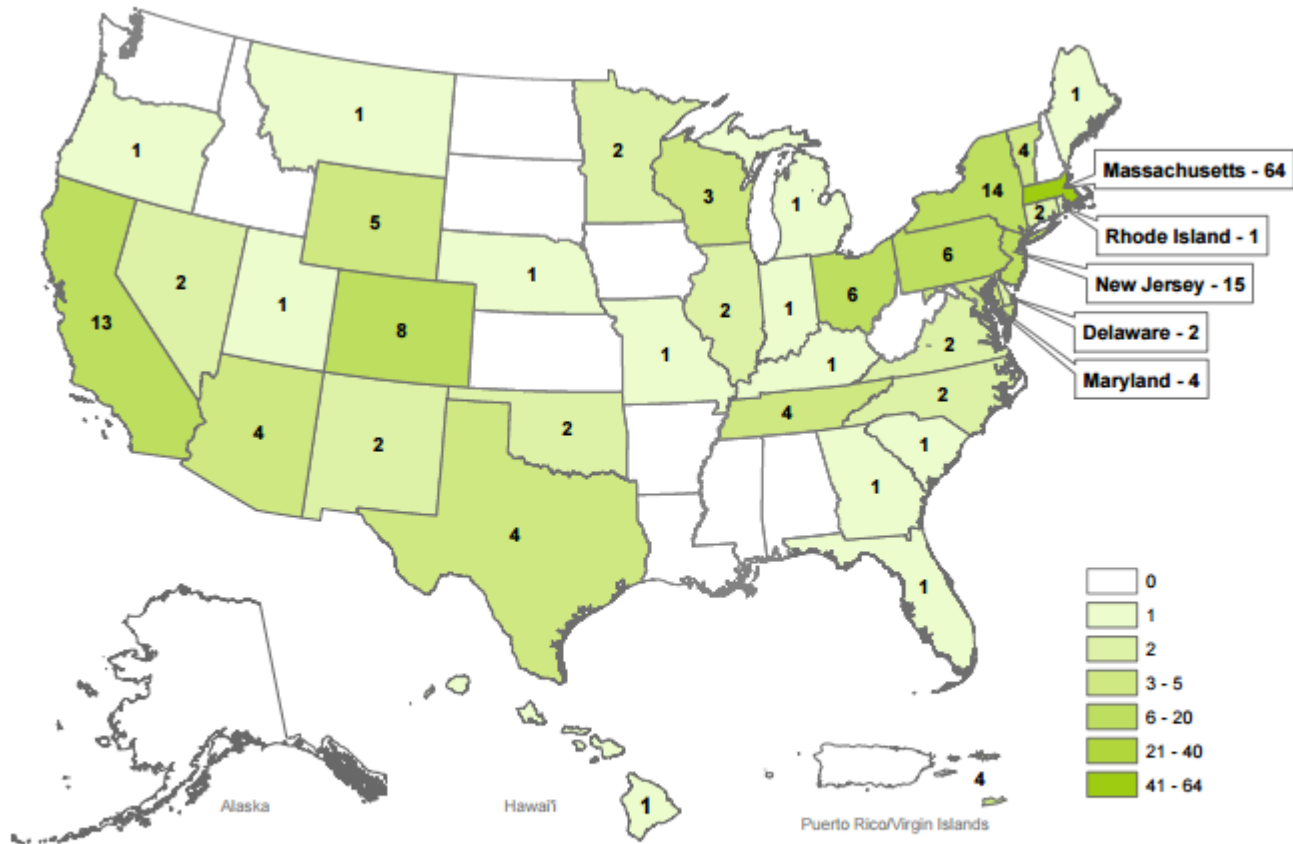


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38 States have Renewable Energy Projects on Contaminated Lands



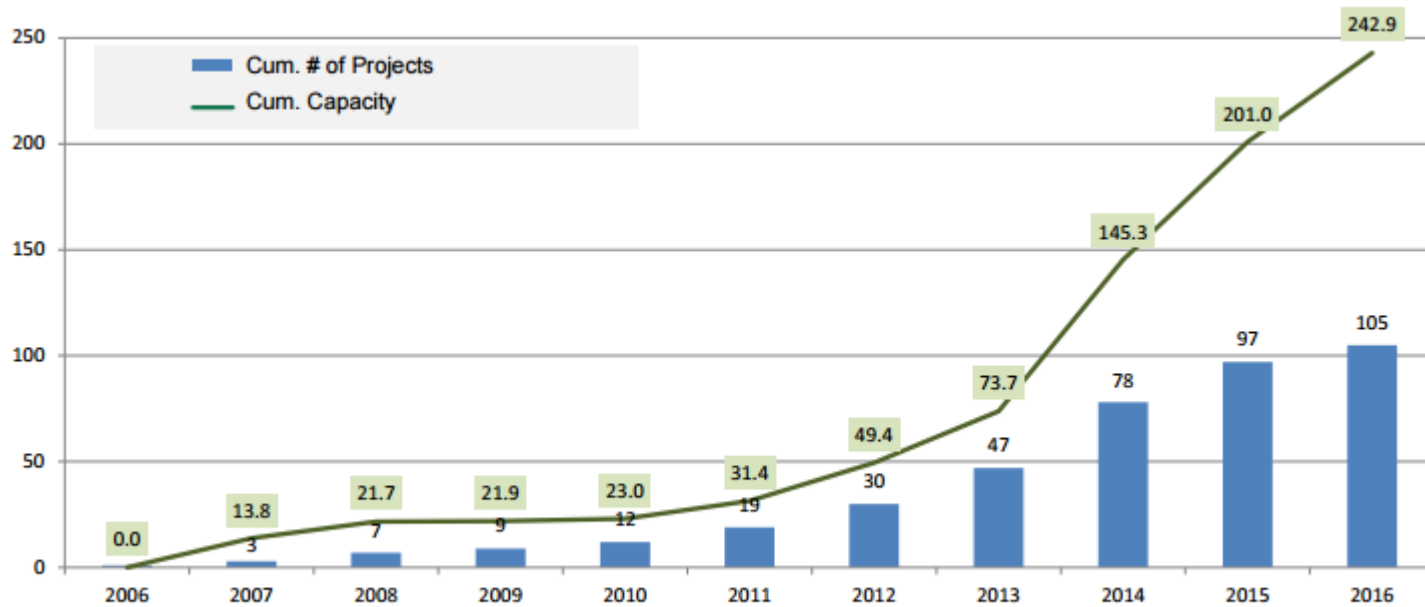
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October 2016

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THE PLANET.



Annual Growth in Solar Installations on Landfill/Landfill Buffer



This map is for informational purposes only. The information was gathered from public announcements of renewable energy projects in the form of company press releases, news releases, and, in some cases, conversations with the parties involved. This map may not be a comprehensive representation of all completed renewable energy projects on contaminated lands. To provide information on additional projects, please email cleanenergy@epa.gov.

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THE PLANET.



Landfill Racking Industry Leader

GameChange Solar is a leader in landfill solar PV racking with installations at numerous landfill and brownfield sites in multiple states nationwide

- In house structural, mechanical and civil engineers to support all aspects of complex landfill and brownfield sites
- Extensive experience working with landfill and brownfield regulatory entities and stakeholders in 12 states
- Ability to support projects in all states



GameChange Pour-in-Place™ System 12.9 MW – New Jersey Landfill Site - Largest Superfund Site in the United States

**LET'S REPOWER
THE PLANET.**

GAMECHANGE SOLAR
REPOWERING THE PLANET

Landfill Racking Industry Leader



17 MW – MA Group of 5
Massachusetts Landfill Sites



12.9 MW - NJ Largest Superfund
Landfill Solar System in USA



6.5 MW – MA Three Closed Solid
Waste Landfills in Western MA



4 MW – MA Falmouth Landfill
Solar System in Massachusetts

**LET'S REPOWER
THE PLANET.**

How GameChange Came About



Our team leadership has invested over \$480,000,000, heavily in metal fabrication companies. This gives us a strong working knowledge of cost effective scale metal manufacturing processes.

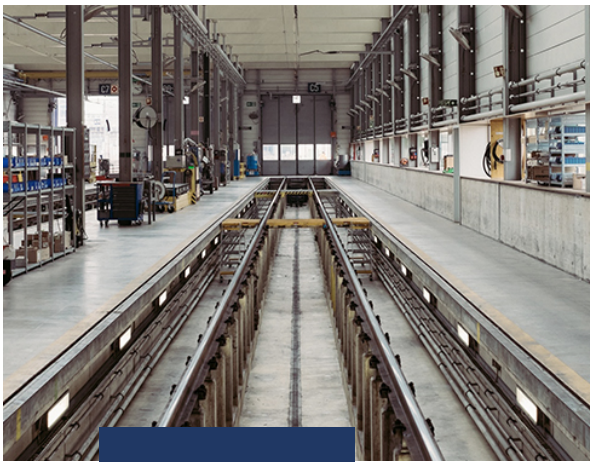
Our group companies built 10 solar power plants and learned the solar business

As these plants were built, we saw that PV mounting structures were too expensive, complicated slow to install, and needed better integrated wire management and grounding.

GameChange Racking was started in 2012 to provide the most cost-effective, high quality and fast-installing solar racking systems.

The company was renamed GameChange Solar in 2015 to better message the immediate expansion into trackers and long term expansion into storage.

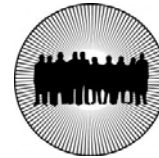
We have built a superior engineering team, leveraged our legacy skillset in solar system installation, design and metal fabrication, and developed the best designed racking systems in the industry.



**LET'S REPOWER
THE PLANET.**

GAMECHANGE SOLAR
REPOWERING THE PLANET

GameChange Unbeatable Quality Attracts World Class EPCs, Developers, and System Owners



CITIZENS ENERGY
CORPORATION



TRUE GREEN CAPITAL



M+W GROUP



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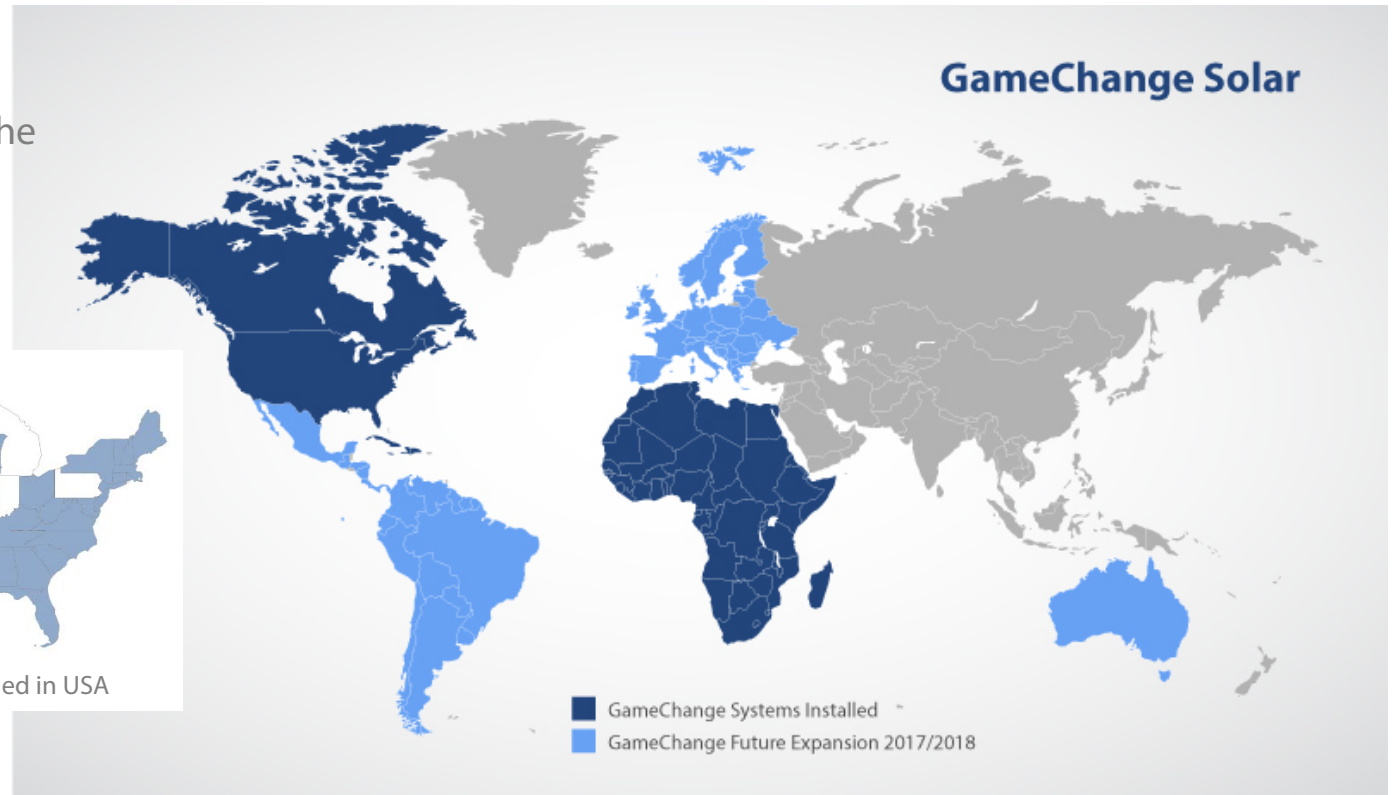
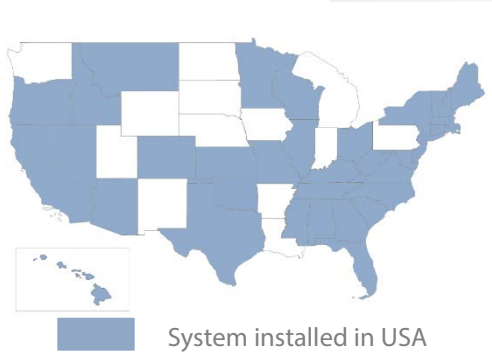
Our Mission: **Change the World by Making Solar Energy Affordable**

Over 2 GW Sold

Over 4GW Manufacturing Capacity

- Uncompromising, Bankable Quality Racking at Value Pricing
- Superior Engineering with Highest Steel Strength in the Industry
- Optimized Design with Less Parts, Less Cost, Fastest Install

Projects in
Over 35 States in the
USA plus Africa,
Canada and the
Caribbean



**LET'S REPOWER
THE PLANET.**

Pour-in-Place™ Ballasted Ground System

Revolutionary Innovation that Pushed GameChange to Landfill Leadership

- Patent pending protected system with self-leveling technology: 68% faster install than precast
- Substantial labor savings by eliminating moving and shimming heavy, precast blocks
- Integrated grounding and wire management
- Supports all poly, glass and thin film modules including First Solar Series 4
- Available in both 1 & 2 panels up in portrait
- 20 year warranty
- ETL / UL 2703 tested
- Independent assessment by Black & Veatch
- Wind tunnel tested by industry leader CPP



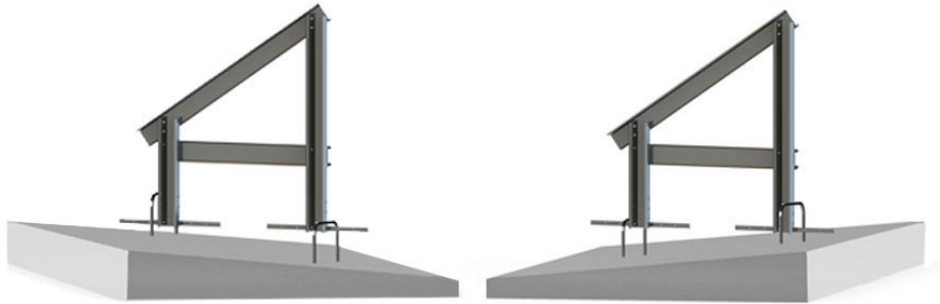
“Fastest ballasted ground system I've installed:
We just drop the racks into the forms and then pour the
concrete. Very few parts, very simple to deploy.”

Ted Gadomski
Operations Manager, Pro Star Electric Inc

**LET'S REPOWER
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 **GAMECHANGE SOLAR**
REPOWERING THE PLANET

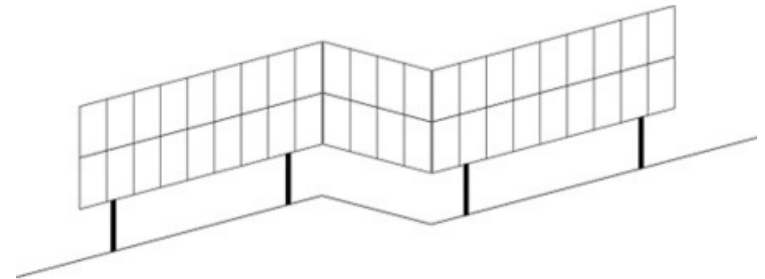
Fastest Install of Any Ballasted Ground System



Self leveling technology with adjustable feet and slots allow fast install and more than 7" vertical adjustability to navigate sloping ground prior to concrete pouring



Patent pending articulating purlin connection to navigate sloping terrain



Articulating purlin connections to navigate up to 15% terrain slopes

**LET'S REPOWER
THE PLANET.**

GAMECHANGE SOLAR
REPOWERING THE PLANET

Concrete and Combiner/Inverter Installation Methodologies



Utilizing concrete trucks to pour directly into tubs: 20 men install 1.64MW per week



Bobcats with pouring buckets allow fast concrete installation on weight sensitive landfill caps: 20 men install 1.54MW per week

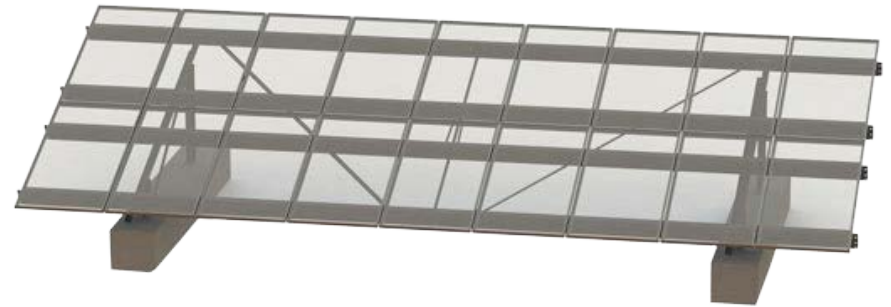


Standard pump truck enables even faster concrete installation: 20 men install 1.94MW per week

**LET'S REPOWER
THE PLANET.**

Precast Ballasted Ground System

- Industry's longest spans and fewest foundations: as few as 190 per MW
- Supports all poly and thin film panels for all vendors
- Foundations may be precast at site or nearest precast location
- Integrated grounding and wire management
- Full layout and engineering analysis for every project
- Fast install with up to 8 inches vertical adjustment with post extender option beyond 1.35 inch standard slots
- Available in both 1 & 2 panels up in portrait
- Landfill solar racking leader
- 20 year warranty
- ETL / UL 2703 tested
- Wind tunnel tested by industry leader CPP



**LET'S REPOWER
THE PLANET.**

Pour-in-Place™ Ballasted Ground Systems Across the USA

12.9 MW, NJ
Largest Superfund Site in USA



4 MW, Rocky Site, MA



2.6 MW, CT



6.5 MW, MA



3.5 MW, CT



2.5 MW, NY



6.24 MW, Central MA



3.4 MW, NJ



3 MW, CA

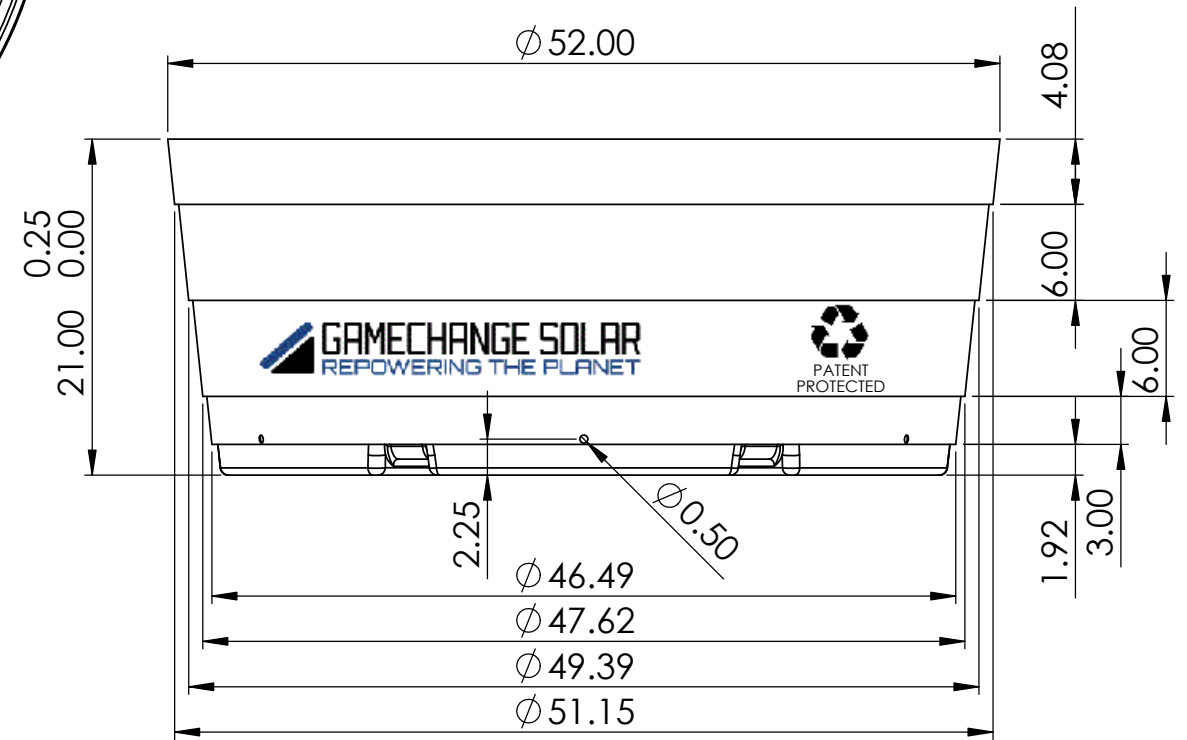
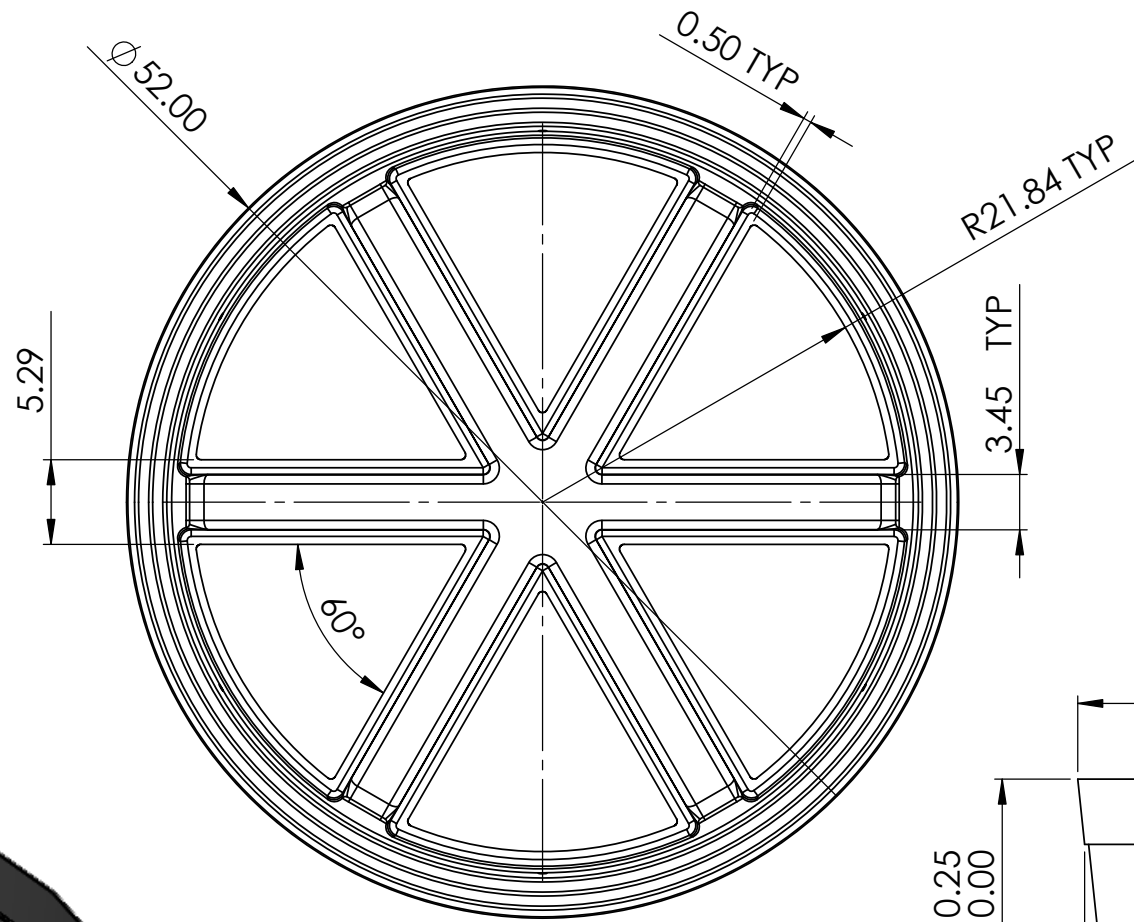
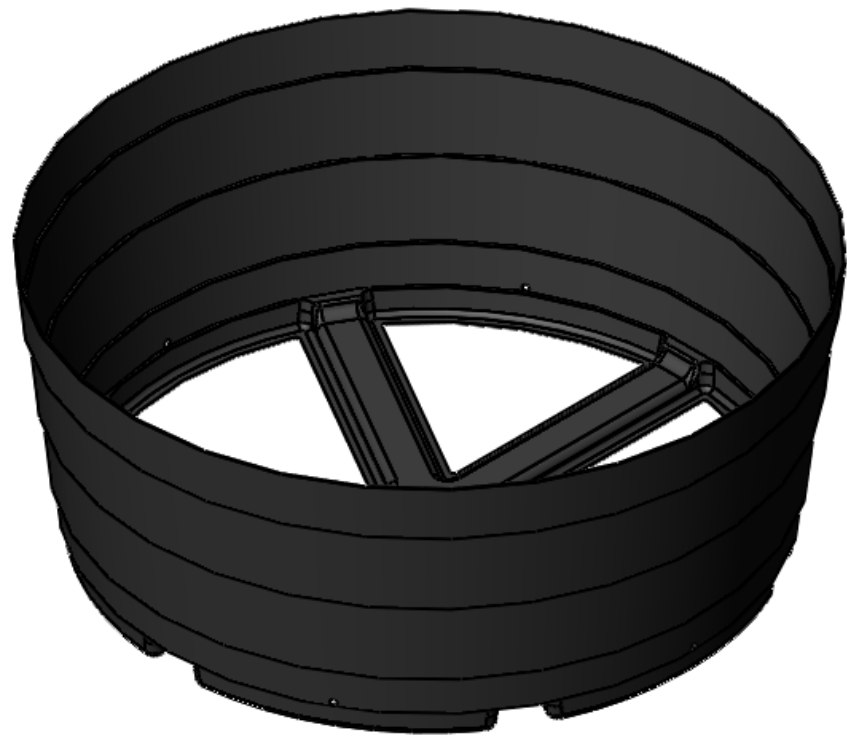




Repower the Planet
with Clean Renewable Solar Energy



D
C
B
A



- Notes:
- 1 Cut Lengths are measured from the bottom of the tube lengths make specified in 1 inch increments
 - 2 Unspecified feature dimensions shall be per model file reference solid model or additional part geometry
 - 3 Part fitness shall be 0.08"
 - 4 Tolerances for all dimensions that are +/- 3/16"

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE	
		DIMENSIONS ARE IN INCHES		DRAWN		
		TOLERANCES:		CHECKED		
		FRACTIONAL ±1/64		ENG APPR.		
		ANGULAR: MACH ±1 BEND ±1		MFG APPR.		TITLE: <h1>Round Tube X-Lar e</h1>
		TWO PLACE DECIMAL ±.063		Q.A.		
		THREE PLACE DECIMAL ±.031		COMMENTS:		SIZE B DWG. NO. GC281XL REV
		INTERPRET GEOMETRIC TOLERANCING PER:				SCALE: 1:12 WEIGHT: SHEET 1 OF 1
		MATERIAL				
		HMWPE Blac				
		FINISH				
NEXT ASSY	USED ON					
APPLICATION		DO NOT SCALE DRAWING				

8 7 6 5 4 3 2 1

D

C

B

A

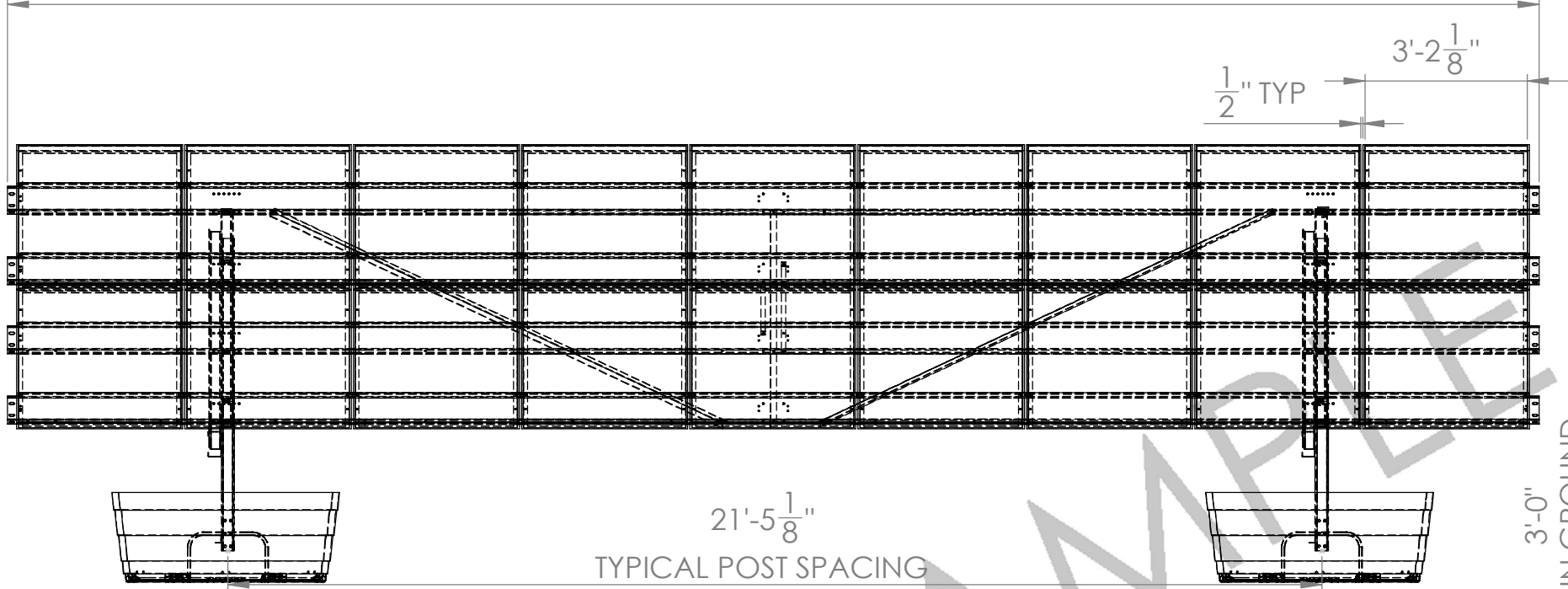
D

C

B

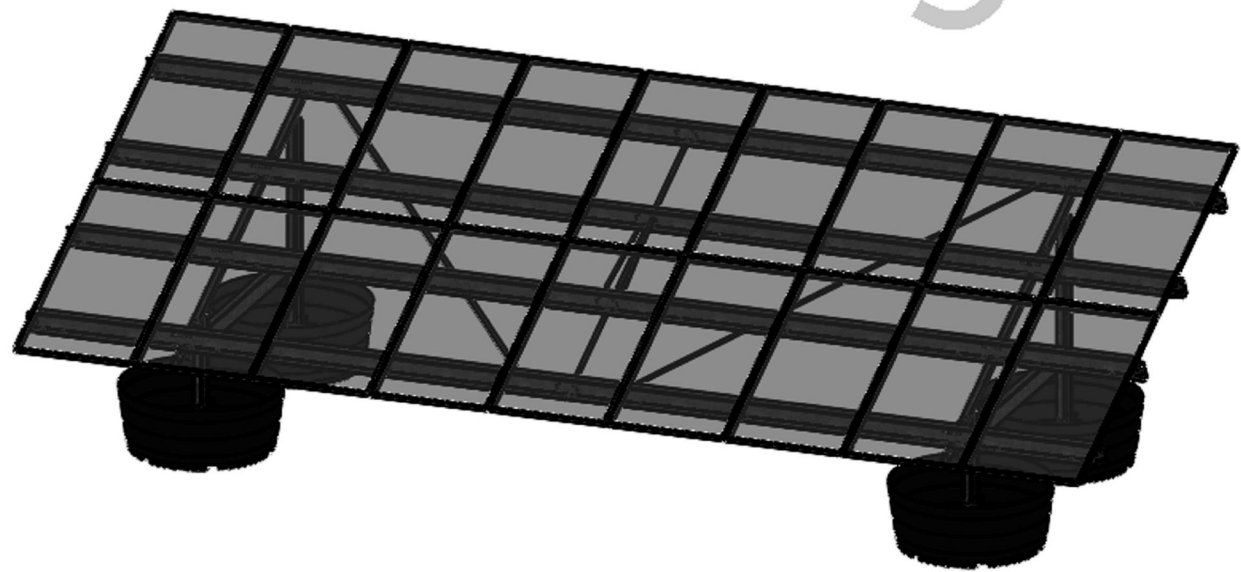
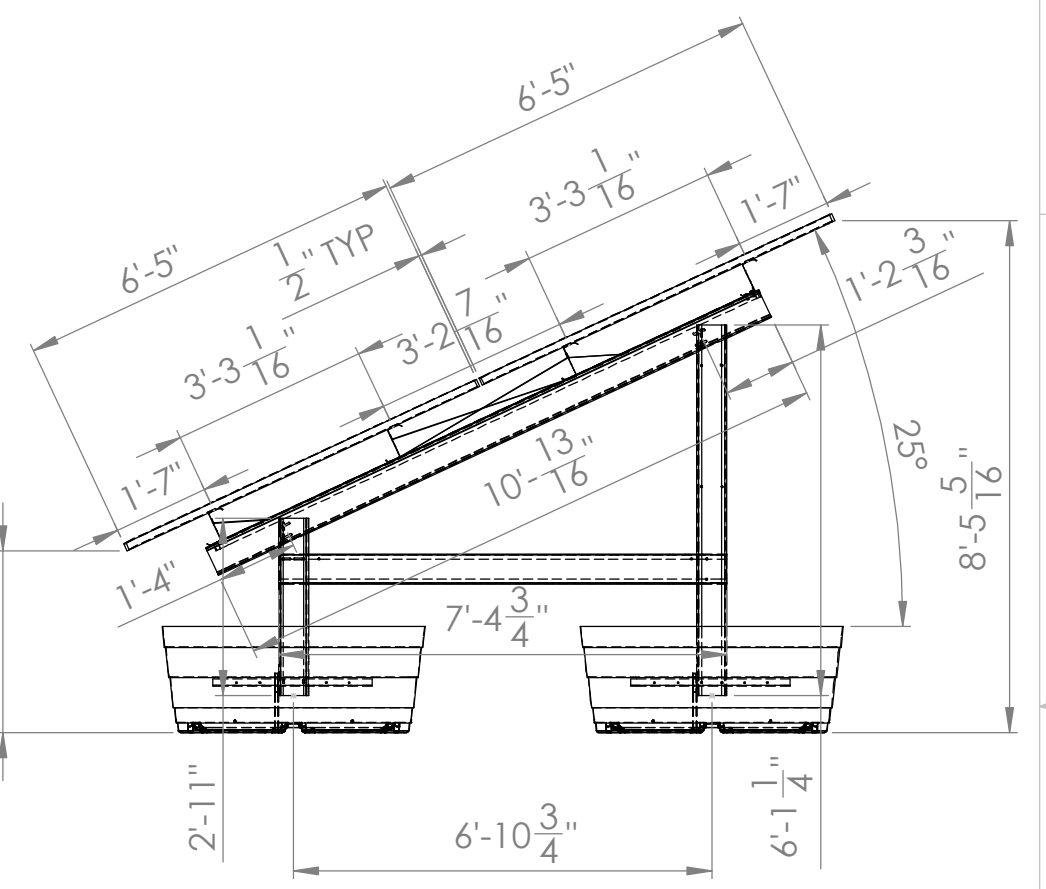
A

30'-0"
9 SPAN
PURLIN LENGTH




21'-5 ¹/₈"
TYPICAL POST SPACING

3'-0"
MIN GROUND
CLEARANCE



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		TOLERANCES:		CHECKED	
		FRACTIONAL ±1/64		ENG APPR.	
		ANGULAR: MACH ±1 BEND ±1		MFG APPR.	
		TWO PLACE DECIMAL ±.02		Q.A.	
		THREE PLACE DECIMAL ±.005		COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:			
		MATERIAL			
		FINISH			
NEXT ASSY	USED ON				
APPLICATION		DO NOT SCALE DRAWING			



GAMECHANGE SOLAR
REPOWERING THE PLANET

TITLE:

Sample GC
Pour-in-Place™
Ballasted Ground

SIZE	DWG. NO.	REV
B	GCPIPS	
SCALE: 1:38 WEIGHT:		SHEET 1 OF 1

8 7 6 5 4 3 2 1

Exhibit D

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HARTFORD CT 06106-1373



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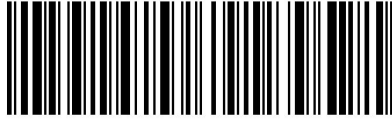
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Department of Consumer Protection
Michelle H Seagull
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165 CAPITOL AVENUE, ROOM 103
HARTFORD CT 06106-1630



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Public Utilities Regulatory Authority
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NEW BRITAIN CT 06051-2655



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Legislative Office Building
Room 4046
HARTFORD CT 06106



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LEBANON CT 06249-1506



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Calli Carboni
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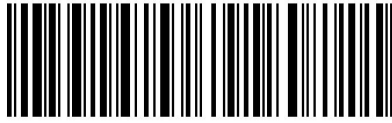
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WILLIMANTIC CT 06226-2200



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Board of Zoning Appeals
William Powers
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TOWN OF WINDHAM
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Inland Wetlands Commission
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TOWN OF WINDHAM
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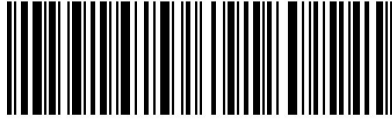
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Paula Stahl
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Southeastern Connecticut Council of Governments
James S. Butler
888 WASHINGTON BLVD # 3
STAMFORD CT 06901-2902



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HARTFORD CT 06106-7106



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Dept of Emergency Services Public Protection
Dora B. Schriro
1111 COUNTRY CLUB RD
MIDDLETOWN CT 06457-2389



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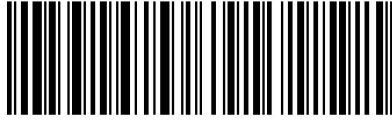
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Conservation Open Space and Ag Commission
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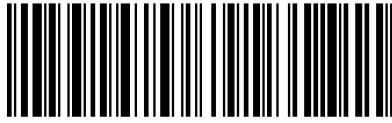
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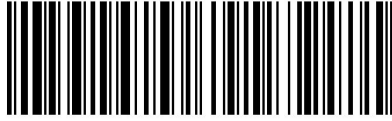
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K BEST USA TRADING INC
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CORONA NY 11368-3825



CHRONICLE MEDIA LLC
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WILLIMANTIC CT 06226
(860)423-8466
Fax (860)423-7641

ORDER CONFIRMATION

Salesperson: Laurie Moulthrope

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Acct #: 10

Ad #: 161322

Status: New

PREPAID LEGALS

Start: 07/14/2018

Stop: 07/14/2018

Times Ord: 1

Times Run: ***

LEG 2.00 X 2.75 Words: 117

Total LEG 5.50

Class: 0005 LEGAL NOTICES

Rate: LEG

Cost: 137.23

Affidavits: 1

Contact:

Phone: (860)423-8466

Fax#: (000)000-0000

Email:

Agency:

Ad Descrpt: LEGAL NOTICE WINDHAM SOLA

Given by: *

P.O. #:

Created: lmoul 07/11/18 10:34

Last Changed: lmoul 07/11/18 16:43

COMMENTS:

COPIED from AD 161216

PUB ZONE EDT TP RUN DATES

CHR A 97 S 07/14

AUTHORIZATION

Under this agreement rates are subject to change with 30 days notice. In the event of a cancellation before schedule completion, I understand that the rate charged will be based upon the rate for the number of insertions used.

Name (print or type)

Name (signature)

(CONTINUED ON NEXT PAGE)

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P. O. BOX 229
WILLIMANTIC CT 06226
(860)423-8466
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ORDER CONFIRMATION (CONTINUED)

Salesperson: Laurie Moulthrope

Printed at 07/11/18 16:43 by lmoul-cm

Acct #: 10

Ad #: 161322

Status: New

Legal Notice

Windham Solar LLC is providing notice to the general public regarding its second amendment to an approved Petition of Declaratory Ruling (Petition #1137) to the Connecticut Siting Council for the proposed development of one (1) 1.1 megawatt solar photovoltaic renewable energy generating facilities to be located on a 44 acre parcel in the SW corner of the intersection of Windham Road and Williams Crossing in the Town of Lebanon and Franklin. This notice is being given pursuant to Section 16-50(l) of the Connecticut General Statutes. The Petition will be submitted on or after July 12th, 2018. Copies of the Petition will be available at the Connecticut Siting Council: Ten Franklin Square, New Britain, CT 06501

Exhibit E

NDDB Update



Connecticut Department of
**ENERGY &
ENVIRONMENTAL
PROTECTION**

June 29, 2017

Blake Nicholson
Windham Solar LLC
222 South Nine Street, Suite 1600
Minneapolis, MN 55402
blake.nicholson@ecosrenewable.com

Project: Windham Solar Project Located at 1 Williams Crossing Road in Lebanon, Connecticut
NDDB Determination No.: 201705132 (update to NDDB 201500200)

Dear Blake,

I have re-reviewed Natural Diversity Data Base maps and files regarding the area delineated on the map you provided for the proposed Windham Solar Project Located at 1 Williams Crossing Road in Lebanon, Connecticut. As you are aware, according to our records we have known extant populations of State Special Concern *Glyptemys insculpta* (wood turtle) in the vicinity of the project site. Thank you for including the Windham Solar Projects Draft SWPCP for the projects Erosion, Sediment and Pollution Control Plan. The protection provisions addressing the wood turtle were outlined in section 6.0. (Page 14 of 184). I have included in this letter our best management practices to protect populations of wood turtles.

Wood turtle: Wood turtles require riparian habitats bordered by floodplain, woodland or meadows. They hibernate in the banks of the river in submerged tree roots. Their summer habitat includes pastures, old fields, woodlands, powerline cuts and railroad beds bordering or adjacent to streams and rivers. This species has been negatively impacted by the loss of suitable habitat.

Recommended Protection Strategies for Turtles:

Work should occur when these turtles are active (April 1st to September 30th). Conducting land clearing while the turtle is active will allow the animal to move out of harm's way and minimize mortality to hibernating individuals. I recommend the additional following protection strategies in order to protect these turtles:

- Hiring a qualified herpetologist to be on site to ensure these protection guidelines remain in effect and prevent turtles from being run over when moving heavy equipment. This is especially important in the month of June when turtles are selecting nesting sites.
- Exclusionary practices will be required to prevent any turtle access into construction areas. These measures will need to be installed at the limits of disturbance.
- Exclusionary fencing must be at least 20 in tall and must be secured to and remain in contact with the ground and be regularly maintained (at least bi-weekly and after major weather events) to secure any gaps or openings at ground level that may let animal pass through. Do not use plastic or netted silt-fence.
- All staging and storage areas, outside of previously paved locations, regardless of the duration of time they will be utilized, must be reviewed to remove individuals and exclude them from re-entry.

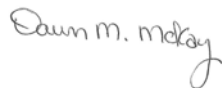
- All construction personnel working within the turtle habitat must be apprised of the species description and the possible presence of a listed species, and instructed to relocate turtles found inside work areas or notify the appropriate authorities to relocate individuals.
- Any turtles encountered within the immediate work area shall be carefully moved to an adjacent area outside of the excluded area and fencing should be inspected to identify and remove access point.
- In areas where silt fence is used for exclusion, it shall be removed as soon as the area is stable to allow for reptile and amphibian passage to resume.
- No heavy machinery or vehicles may be parked in any turtle habitat.
- Special precautions must be taken to avoid degradation of wetland habitats including any wet meadows and seasonal pools.
- The Contractor and consulting herpetologist must search the work area each morning prior to any work being done.
- When felling trees adjacent to brooks and streams please cut them to fall away from the waterway and do not drag trees across the waterway or remove stumps from banks.
- Avoid and limit any equipment use within 50 feet of streams and brooks.
- Any confirmed sightings of box, wood or spotted turtles should be reported and documented with the NDDDB (nddbrequestdep@ct.gov) on the appropriate special animal form found at (http://www.ct.gov/deep/cwp/view.asp?a=2702&q=323460&depNav_GID=1641)

If these protection strategies are followed then the proposed activities will lessen the impact on this state-listed species. This determination is good for two years. Please re-submit an NDDDB Request for Review if the scope of work changes or if work has not begun on this project by June 29, 2019.

Natural Diversity Data Base information includes all information regarding critical biological resources available to us at the time of the request. This information is a compilation of data collected over the years by the Department of Energy and Environmental Protection's Natural History Survey and cooperating units of DEEP, private conservation groups and the scientific community. This information is not necessarily the result of comprehensive or site-specific field investigations. Consultations with the Data Base should not be substitutes for on-site surveys required for environmental assessments. Current research projects and new contributors continue to identify additional populations of species and locations of habitats of concern, as well as, enhance existing data. Such new information is incorporated into the Data Base as it becomes available.

Please contact me if you have further questions at (860) 424-3592, or dawn.mckay@ct.gov . Thank you for consulting the Natural Diversity Data Base. A more detailed review may be conducted as part of any subsequent environmental permit applications submitted to DEEP for the proposed site.

Sincerely,



Dawn M. McKay
Environmental Analyst 3

WILDLIFE IN CONNECTICUT

STATE SPECIES OF SPECIAL CONCERN

Wood Turtle

Glyptemys insculpta

Background

Wood turtles may be found throughout Connecticut, but they have become increasingly rare due to their complex habitat needs. Wood turtles also have become more scarce in Fairfield County due to the fragmentation of suitable habitat by urban development.

Range

Wood turtles can be found across the northeastern United States into parts of Canada. They range from Nova Scotia through New England, south into northern Virginia, and west through the Great Lakes region into Minnesota.

Description

The scientific name of the wood turtle, *Glyptemys insculpta*, refers to the deeply sculptured or chiseled pattern found on the carapace (top shell). This part of the shell is dark brown or black and may have an array of faint yellow lines radiating from the center of each chiseled, pyramid-like segment due to tannins and minerals accumulating between ridges. These segments of the carapace, as well as those of the plastron (bottom shell), are called scutes. The carapace also is keeled, with a noticeable ridge running from front to back. The plastron is yellow with large dark blotches in the outer corners of each scute. The black or dark brown head and upper limbs are contrasted by brighter pigments ranging from red and orange to a pale yellow on the throat and limb undersides. Orange hues are most typical for New England's wood turtles. The hind feet are only slightly webbed, and the tail is long and thick at the base. Adults weigh approximately 1.5 to 2.5 pounds and reach a length of 5 to 9 inches.



© PAUL J. FUSCO

Habitat and Diet

Wood turtles use aquatic and terrestrial habitats at different times of the year. Their habitats include rivers and large streams, riparian forests (adjacent to rivers), wetlands, hayfields, and other early successional habitats. Terrestrial habitat that is usually within 1,000 feet of a suitable stream or river is most likely used. Preferred stream conditions include moderate flow, sandy or gravelly bottoms, and muddy banks.

Wood turtles are omnivorous and opportunistic. They are not picky eaters and will readily consume slugs, worms, tadpoles, insects, algae, wild fruits, leaves, grass, moss, and carrion.

Life History

From late spring to early fall, wood turtles can be found roaming their aquatic or terrestrial habitats. However, once temperatures drop in autumn, the turtles retreat to rivers and large streams for hibernation. The winter

is spent underwater, often tucked away below undercut riverbanks within exposed tree roots. Dissolved oxygen is extracted from the water, allowing the turtle to remain submerged entirely until the arrival of spring. Once warmer weather sets in, the turtles will become increasingly more active, eventually leaving the water to begin foraging for food and searching for mates. Travel up or down stream is most likely, as turtles seldom stray very far from their riparian habitats.

Females nest in spring to early summer, depositing anywhere from 4 to 12 eggs into a nest dug out of soft soil, typically in sandy deposits along stream banks or other areas of loose soil. The eggs hatch in late summer or fall and the young turtles may either emerge or remain in the nest for winter hibernation. As soon as the young turtles hatch, they are on their own and receive no care from the adults.

Turtle eggs and hatchlings are heavily preyed upon by a wide variety of predators, ranging from raccoons to birds and snakes. High rates of nest predation and hatchling mortality, paired with the lengthy amount of time it takes for wood turtles to reach sexual maturity, present a challenge to maintaining sustainable populations. Wood turtles live upwards of 40 to 60 years, possibly more.

Conservation Concerns

Loss and fragmentation of habitat are the greatest threats to wood turtles. Many remaining populations in Connecticut are low in numbers and isolated from one another by human-dominated landscapes. Turtles forced to venture farther and farther from appropriate habitat

to find mates and nesting sites are more likely to be run over by cars, attacked by predators, or collected by people as pets.

Other sources of mortality include entanglements in litter and debris left behind by people, as well as strikes from mowing equipment used to maintain hayfields and other early successional habitats.

The wood turtle is imperiled throughout a large portion of its range and was placed under international trade regulatory protection through the Convention on International Trade in Endangered Species (CITES) in 1992. Wood turtles also have been included on the International Union for Conservation of Nature's (IUCN) Red List as a vulnerable species since 1996. They are listed as a species of special concern in Connecticut and protected by the Connecticut Endangered Species Act.

How You Can Help

- *Conserve riparian habitat. Maintaining a buffer strip of natural vegetation (minimum of 100 feet) along the banks of streams and rivers will protect wood turtle habitat and also help improve the water quality of the stream system. Stream banks that are manicured (cleared of natural shrubby and herbaceous vegetation) or armored by rip rap or stone walls will not be used by wood turtles or most other wildlife species.*
- *Do not litter. Wood turtles and other wildlife may accidentally ingest or become entangled in garbage and die.*
- *Leave turtles in the wild. They should never be kept as pets. Whether collected singly or for the pet trade, turtles that are removed from the wild are no longer able to be a reproducing member of a population. Every turtle removed reduces the ability of the population to maintain itself.*
- *Never release a captive turtle into the wild. It probably would not survive, may not be native to the area, and could introduce diseases to wild populations.*
- *As you drive, watch out for turtles crossing the road. Turtles found crossing roads in June and July are often pregnant females. They should **not** be collected but can be helped on their way. Without creating a traffic hazard or compromising safety, drivers are encouraged to avoid running over turtles that are crossing roads. Also, still keeping safety precautions in mind, you may elect to pick up turtles from the road and move them onto the side in the direction they are headed. Never relocate a turtle to another area that is far from where you found it.*
- *Learn more about turtles and their conservation concerns, and educate others.*
- *If you see a wood turtle, leave it in the wild, take a photograph, record the location where it was seen, and contact the Connecticut Department of Environmental Protection (DEP) Wildlife Division at dep.wildlife@ct.gov, or call 860-424-3011 to report your observation.*

